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# CONCEPTS + PROGRAMS

INCLUDES THE MARINE CORPS ALMANAC

U.S. MARINE CORPS



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# CONCEPTS + PROGRAMS

INCLUDES THE MARINE CORPS ALMANAC

U.S. MARINE CORPS





### A MESSAGE FROM THE COMMANDANT OF THE MARINE CORPS

Today's Marine forces continue to demonstrate the readiness, agility, and lethality the Nation demands from its armed forces in uncertain times. As we battle insurgents, strike at fanatical terrorists, respond to humanitarian crises, and deter aggression around the globe, we continue to validate the necessity of "expeditionary" capabilities in meeting the Nation's wide range of security challenges. Our success in these endeavors requires that we draw upon past strengths, while innovatively anticipating and overcoming 21st Century dangers.

The 21st Century Marine Corps, as part of a joint force, must be able to project U.S. power anywhere. With our naval partners, Marines will exploit the Navy's command of the seas with sustained naval force projection ashore. Taking full advantage of this asymmetric advantage through the Sea Basing operational concept, the Navy-Marine Corps team provides a strategic capability for assuring access, increasing responsiveness, maximizing the effects of forward presence, and reducing our dependence on vulnerable land bases—which greatly expands the options available to the combatant commanders.

While we retain the ability to fight effectively across the conflict spectrum, fighting and winning the Global War on Terrorism remains our top priority. Because of the Nation's overwhelming strength in traditional conflicts, we believe that future conflicts will be dominated by irregular wars of an increasingly unrestricted nature, involving terrorism,



insurgency, and civil war. As a function of our heritage, training, and education, Marines intuitively think independently and act aggressively, yet with a measure of cultural understanding such chaotic and unpredictable environments demand. Typically projecting our forces from the sea, we further possess the capability to operate at long distances and for extended periods of time as an integral combined arms element of a joint force. Our forward deployed posture throughout the world, both on land and at sea, supports these goals for our increased readiness and contribution to the global war.

Our main effort in building tomorrow's Marine Corps will be honing the warfighting excellence of the individual Marine, our combined arms Marine Air-Ground Task Forces, and our expeditionary culture based on an ethos of rapid responsiveness, and our ingrained preparedness to be "First to Fight." At the center of these capabilities is the 21st century Marine, who exudes the Corps' tradition of warrior excellence and is today more capable than ever. Well trained, well led, and well equipped Marines have always been our greatest strength, and they are the focus of ensuring the Corps remains one of the world's finest fighting forces.

This 2005 version of Concepts and Programs describes our strategic direction, operational concepts, and those major programs we require to continue the Marine Corps' warfighting excellence and relevancy in the 21st century. This book also contains facts and figures on our people, organizations, and resources to foster a better understanding of the Corps and the tremendous Americans who fill its ranks.

CONCEPTS + PROGRAMS

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## EXPLOITING OUR EDGE

**The 21<sup>st</sup> Century Marine Corps**

Today, U.S. Marines are fighting in Afghanistan and Iraq, engaged against radical insurgents, and religious extremists. Weariless warring factions, strings of suicide bombings, bizarre kidnappings and beheadings—all epitomize the barbarian nature of our 21st century enemy. And, as that enemy's methods and madness become more unconventional, the value the United States places on its Marines has never been greater.

In 2005, Marines waging the Global War on Terrorism (GWOT) are meaner, leaner, and more lethal as an expeditionary force suitable for engagement wherever required. From Kuwait to Kabul and from Baghdad to Basrah, we are fighting an unconventional war in which terrorists' extreme warfighting tactics require America's 21st century Marines to be a total force that is of unquestionable value in any conflict. As terrorist cells spread globally, the need for the expeditionary expertise of 21st century Marines is more critical to the safety and security of our nation than ever before.

Unequivocal expeditionary mastery is a necessity in fighting the GWOT. As Operations Iraqi Freedom II and Enduring Freedom II took place in 2004, this need to be agile, lethal, and readily deployable—while requiring a minimum of logistical support—lets us project our power over long distances in days or weeks, rather than months.

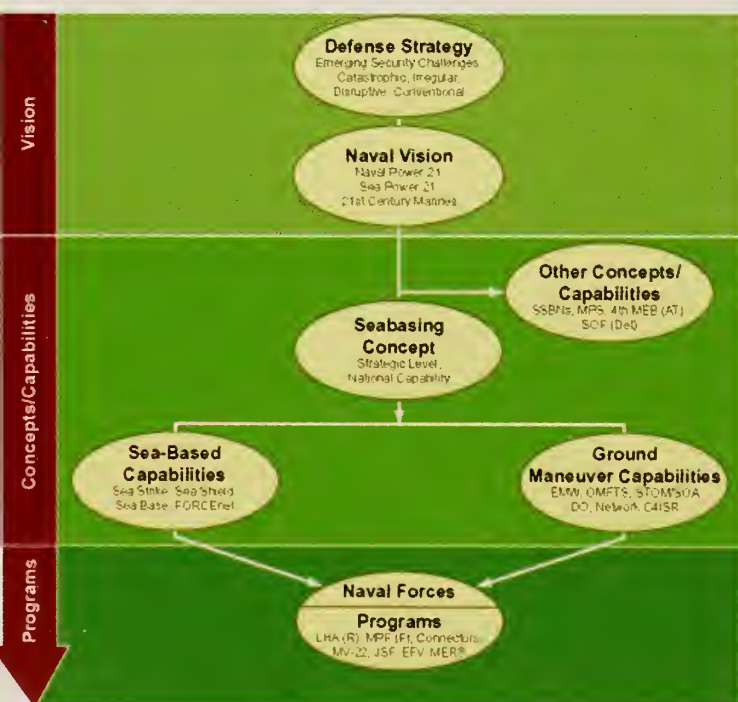
The Marine Corps, renowned for being the “First to Fight,” is uniquely qualified to accomplish this task. Its enduring values—warfighting excellence, combined-arms air-ground task forces, and its expeditionary ethos of readiness for rapid deployability—enable Marines to meet today’s unconventional strategic and operational challenges. Our core values are constantly in demand today and must be maintained for us to meet the challenges of the future. Throughout our nation’s history, the competencies of the Marines have been called



upon time and again. As we move into the 21st century, warfare requires these capabilities be broadened to decisively defeat growing and diverse threats.

Throughout 2004, U.S. Marines, sailors, soldiers and other coalition forces fought battles across Iraq. Marines on the frontlines showed, as they have many times in the past, that they are a critical essence of America’s military might. The counterinsurgency experience of the Marines has been the backbone of operations in Iraq and Afghanistan, where they have gallantly battled for control of major cities across the region, pushing out and suppressing the enemy.

Marines spearheaded the liberation of enemy strongholds like Fallujah, capturing and/or destroying anti-Iraqi insurgents. They helped restore security and stability, and are instrumental in rebuilding these war-torn towns. As the war efforts continue, Marines are supplying translators, securing detainees, and providing military and police training for Iraqis. They are helping reconstruct tactical airfields and







repair damaged pipelines. This summer, Marines even helped the Iraqis pump billions of dollars worth of oil.

Operation Iraqi Freedom II requires Marines and other coalition forces to conduct extensive searches, which routinely uncover large caches of weapons and munitions. Marines help sweep and clear massive minefields, and clean up/neutralize the improvised explosive devices that have become one of the terrorists' weapons of choice.

As we enter 2005, Marines continue to be a vital source in restoring stability and security to Iraq. They are helping to rebuild its national infrastructure. They are repairing roads, bridges, and buildings. They are also accomplishing a wide range of humanitarian missions, including providing food, water, and medical and dental treatment. They deliver supplies, conduct urban search and rescue, and protect mosques. They teach health and hygiene classes, and provide educational and resource materials for local schools. And, they ensure the safety of children and teachers in those schools as they reopen.

Of the vast accomplishments of coalition forces to date, two stand above the rest. First-ever democratic elections were held in Afghanistan, and Saddam Hussein was captured and ousted from power in Iraq.

### **The Global War on Terrorism**

In this new and highly dangerous millennium, terrorists are operating in all parts of the globe—evidenced in 2004 by the attacks in Russia, Spain, the Philippines, and elsewhere. While it is impossible to predict the time or location of the next terrorist attack, the Marine Corps is well positioned for a significant role in those conflicts. Evolutionary developments like Maritime Pre-positioning Ships (MPS) and the Marine Expeditionary Unit (Special Operations Capable) programs that were initiated in the 1980s are serving the Marine Corps and the nation well. These achievements have been reinforced by







significant conceptual development efforts, particularly Operational Maneuver From the Sea.

In the new millennium, our expeditionary Corps is both ready and capable of the demands of the GWOT. We will continue to play a vital role in fighting the GWOT, no matter where terrorists seek to destabilize and destroy. In 2005, our efforts are focused on Iraq and Afghanistan, where the dedication of Marine forces will continue to ensure the newfound freedom and democracy of our newest allies in the Middle East.

As we enter the 21st century, fighting—and winning—the Global War on Terrorism is our top priority. Thus, we must understand the strategic landscape of this new type of war. The GWOT centers on a worldwide, radical Islamist insurgency that involves asymmetric warfare fought by decentralized groups of terrorists, as well as the exploitation of failed/failing states and intrastate conflicts. These new threats are combined with the concerns of traditional warfare, such as regional powers with conventional and/or nuclear capability and the continued instability created by interstate conflicts.

To meet these challenges, the Marine Corps has shaped its transformation to meet the 1-4-2-1 contingency strategy and the strategic response objectives established in the Strategic Planning Guidance (SPG). The Marines are fully integrated into the execution of this joint strategy that calls for defense of our homeland, while deterring aggression forward in four regions, and swiftly defeating in two or winning decisively in one. The Marine Corps is concurrently actively engaged in combat operations in Afghanistan as well as significantly contributing to the campaign to defeat insurgents and train coalition forces in Iraq. Further, projected Navy and Marine Corps forces operating from a forward presence posture will have the capability to establish a sovereign sea base and swiftly defeat, or win decisively over, any aggressor within days of arrival.

### **Emerging Challenges**

As the Global War on Terror continues to unfold, the Strategic Planning Guidance directs balanced capabilities for controlling four principal kinds of challenges that must be met:



Traditional Challenges center on conventional combatant threats and our potential conventional adversaries. We will continue to meet these challenges today and in the years to come. However, the high priority on the GWOT requires our future focus to be on the Irregular and Catastrophic challenges.

Emerging Challenges of National Defense Strategy	
<b>CATASTROPHIC</b> Terrorist Nexus NBC Proliferation Rogue States	<b>IRREGULAR</b> Terrorism Insurgency Unrestricted Warfare
<b>DISRUPTIVE</b> Advance Sensors Info Processing Biotechnology Cyber-technology	<b>TRADITIONAL</b> Conventional Combat Capability

Irregular Challenges—including local terrorism, insurgency, unrestricted warfare, societal war, and/or third party coercion—are increasing in sophistication but are countered by the Marines’ historical ability to engage in actions against these threats, without the connotation of a long term presence that other options bring.

Catastrophic Challenges include potential international terrorists whose Nuclear/Biological/Chemical (NBC) proliferation enables rogue states that could impact the security of our homeland. These threats are countered by our unique forward-deployed Marine Expeditionary Units (Special Operations Capable), which often deploy as part of America’s powerful general purpose naval forces.

The challenges of Disruption involve our potential adversaries’ breakthrough capabilities in technological areas, which are countered by our own scientific research, development, and hi-tech advancements.

**Navy-Marine Corps Vision**

To meet this range of evolving challenges, the Department of the Navy has

articulated the Naval Power 21 vision that enhances Navy and Marine Corps capabilities today and tomorrow. This vision serves as the way ahead for naval programs and operations. It incorporates the Navy’s *Sea Power 21 and 21st Century Marine Corps* frameworks as a foundation to ensure naval forces control the seas, assure access, and project joint power beyond the sea to influence events and advance American interests across the range of military operations.

Today’s threats are operating around the world, and naval expeditionary forces are an indispensable asset in America’s ability to respond rapidly to crises that occur anytime and anywhere. America’s ability to use international seas and waterways, as both maneuver space and an operating base unconstrained by foreign veto, allows our naval forces to project combat power into the littoral regions, which contain more than half the world’s population and more than 75 percent of its major urban areas.

Forward-deployed, sea-based Navy and Marine Corps forces are an important platform from which the United States can respond to fast-breaking crises. Highly



mobile and ready for combat as soon as they arrive in the crisis area, our expeditionary forces are critical instruments of U.S. diplomacy and central components of joint military force packages designed to quickly contain a crisis or defeat an emerging threat. This Navy-Marine Team enables a U.S. military response that may include major deployments of forces based in the United States.

During hostilities, the Navy and Marine Corps Team offers unmatched forcible-entry capabilities and can provide a persistent combat capability from their mobile sea base, thus reducing the U.S. logistical “footprint” ashore. To accomplish this, the Marine Corps must exploit the Navy’s command of the sea to project, protect, and sustain integrated joint warfighting capabilities. Moreover, the ability of the Navy-Marine Corps Team to exploit the sea 365 days a year will provide additional options for the President, and ensure operational independence for the Regional Combatant Commanders.

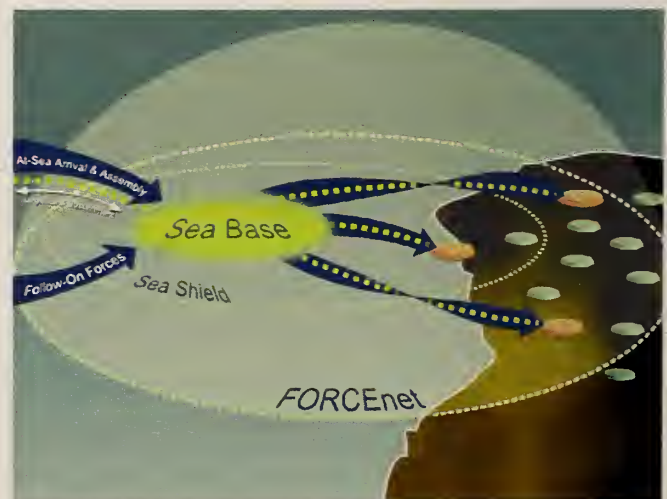
By exploiting our nation’s premier asymmetric advantage—command of the sea—this Seabasing capability will generate strategic speed and assured access, greatly expanding our options across the full spectrum of warfare. To this end, the Seabasing Operating Concept forms the core of naval transformation. It is an innovative description of how future military art and science will equip the nation with the ability to rapidly assure joint access and project joint power from the sea.

### Seabasing Concept

Seabasing is a transformational concept that revolutionizes the projection, protec-

tion, and sustainment of integrated naval warfighting capabilities. The sea base comprises the integrated capabilities resident in a family of systems and assets afloat to maximize the projection and maneuver of all dimensions of Navy power both at sea and ashore. In the context of *Sea Power 21*, the Sea Base is the foundation for Sea Shield and Sea Strike. Seabasing is also being developed as a Joint Integrating Concept (JIC) that will leverage into the Joint Command and Control System, using FORCEnet to interconnect both afloat pre-positioned ships and combat units within the sea base. Thus, FORCEnet is the “glue” that binds together Sea Strike, Sea Shield and the Sea Base. It integrates warriors, platforms, sensors, weapons, and logistics into a networked and distributed combat force.

Moreover, Seabasing is capable of supporting joint advance-force operations and provides the capability to accommodate the Joint Force Commander afloat. Seabasing enhances operational independence and support for the joint force by taking advantage of the maneuver space of the sea. The sea base consists of a network of distributed ships capable of forming a joint base that is







more secure than a land base and that is not reliant on host nation support. Seabasing accelerates expeditionary deployment and employment timelines by pre-positioning vital equipment and supplies in theater, allowing the United States to take swift and decisive action during crises. The characteristics of Seabasing include being maneuverable, dispersed, secure, netted, responsive, interoperable, scalable, and joint enabling.

The core capability of Seabasing, which enables joint forcible entry operations, is the Expeditionary Strike Force (ESF). The ESF provides networking, high-speed connectors (HSC), and potential joint or coalition troops and vessels that form the sea base. An ESF is comprised of a Carrier Strike Group (CSG), Expeditionary Strike Group (ESG), and a Maritime Pre-positioning Group (MPG) including a Marine Expeditionary Brigade (MEB). This integration produces a rapidly employable and credible, combined arms force that is capable across the range of military operations. Forward-deployed CSGs and ESGs set the conditions within the battlespace to position a sea-based MEB capable of reinforcing

ing forcible entry that enables the joint force to decisively defeat an adversary.

The sea base consists of strategic combinations of vessels, such as aircraft carriers, amphibious ships, amphibious transports, dock landing ships, replenishment ships, Aegis cruisers and destroyers, conventional destroyers, and frigates, as well as attack submarines. Consisting primarily of future squadrons of maritime pre-positioned forces, known as MPF(F), and combat logistics forces aboard replenishment ships and HSCs, the MPG can augment in-theater forces with the combined arms capability of the Marine Expeditionary Brigade flow-in-echelon.

Other theater assets of the sea base include unique, specialized, and complementary capabilities at the strategic and operational levels of war, such as Special Operations Forces (SOF), nuclear-powered guided-missile submarines, mine warfare ships, and the littoral combat ship (LCS). Networked with the sea base, these in-theater assets can provide the intelligence, command and control (C2), breaching, fires, and mine clearing that are critical to operations.

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## Seabasing Capabilities

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Seabasing is the premier warfighting concept of the 21st century because of its many breakthrough capabilities, including rapid force closure, network enabled C4ISR (Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance), phased at-sea arrival and assembly, selective offload, integrated naval power projection, persistence and sustainment, and reconstitution at sea.

Seabasing increases Naval combat striking power by creating additional independent operational groups capable of responding to crisis around the world. This increase of combat power is possible because technological advances are transforming the capability of our ships, submarines, and aircraft to act as power-projection forces, netted together for expanded warfighting effect. The results are already proving to be profound, as naval capability packages are readily assembled from forward-deployed forces tailored to meet the mission needs of joint force commanders. These critical capability packages can be sized to the magnitude of the task at hand and, as a result,

enable our forces to respond to a broad range of contingencies and conflict, anywhere around the world.

Rapid force closure includes self-deployment, strategic air, surface, and commercial assets, supported en route by networked command and control systems. Network enabled C4ISR in concert with FORCEnet facilitates well coordinated and orchestrated actions by decentralized commanders to increase operational tempo. Phased at-sea arrival and assembly allows rapid deployment of a MEB and select joint force in as little as seven days. Selective offload allows the assembly of tailored sustainment packages for the requesting commander, and delivery of those tailored packages directly to units, which decreases the time, associated equipment, and manpower ashore needed to support operations. Integrated naval power projection combines offensive and defensive fires with maneuver, extending the Navy-Marine team's military might from space to the ocean floor and from blue water to the littorals and beyond.







Sea based platforms with their embarked forces can remain on-station, where needed, for extended periods of time providing sustainment for the preponderance of headquarters, aviation, and service support activities to remain afloat. This reduces the logistics and force protection requirements ashore, while improving the agility and flexibility of the force, and ensuring increased force readiness through sustainment. Reconstitution at sea allows units to “recover” at the sea base, where on-board logistics capabilities and advancements in maintenance, storage, distribution, and information technology speed the process, providing enhanced flexibility to deal with emerging situations.

The GWOT requires capabilities to rapidly project and sustain our forces in distant anti-access or area denial environments. Through a fully networked sea base, joint forces will be strategically and operationally agile, while benefiting from the inherent security derived from the U.S. Navy’s command of the sea.

## **Expeditionary Maneuver Capabilities**

Seabasing takes advantage of the U.S. Navy’s ability to exploit the sovereignty of the sea which, in turn, has enabled the Marine Corps’ rich amphibious history. Marine expertise and innovation in amphibious warfare, counterinsurgency operations, close air support, military use of helicopters and vertical/short take off aviation, and maritime pre-positioning allow it to continue transforming itself to meet the challenges of the 21st century. By developing forward-thinking concepts that generate discussion, spearhead experimentation, and drive change, we can meet future challenges and capitalize on emerging opportunities. These concepts must be linked to, and be consistent with, an emerging body of Joint Operating Concepts.

## **Concepts Drive Capabilities.**

*Expeditionary Maneuver Warfare (EMW)* is the Marine Corps capstone concept, and it serves as a link between today’s institutional capabilities and core values and our family of Operating, Functional and Enabling Concepts. Operational Maneuver From the Sea (OMFTS) links naval and maneuver warfare, doctrine, and technological advances in speed, mobility, fire support, communications and navigation to rapidly identify and exploit enemy weaknesses across the spectrum of conflict. Ship To Objective Maneuver (STOM) applies maneuver warfare concepts to the littoral battlespace, envisioning seamless maneuver from over the horizon directly to objectives deep inland. Sustained Operations Ashore (SOA) envisions the MAGTF as a general purpose Operational Maneuver Element executing a series of





precise, focused combat actions. OMFTS and STOM compel the enemy to defend the complete length of his coastline and array his forces in depth throughout the littoral. This combination demands that the adversary both disperse and concentrate his forces, creating opportunities to exploit seams and gaps in his defenses.

### **Distributed Operations Capabilities**

Distributed Operations (DO) is a logical extension of our philosophy of EMW and the body of concepts stemming from OMFTS. DO is an approach that is applicable at both the operational and tactical levels of war, by which a commander alternately disperses and concentrates networked forces to define and shape the battlespace. This reconnaissance pull approach seeks to create an enhanced positional, psychological, and temporal advantage over the adversary. DO serve as a bridge to expanded operations with other networked joint forces. It enables naval forces to establish a worldwide presence, while simultaneously conducting combat

operations, such as those involving the GWOT, in selected regions. This global posture allows us to respond rapidly to emerging crises with powerful and sustainable combined arms teams.

Improved situational awareness, including real time and high fidelity data from dispersed teams, improves the vertical transmission of information. Shared situational awareness, which is the product of extensive training as well as a common operating picture, accelerates the horizontal integration and mutually supporting actions of our dispersed units.

Our ability to counter threats—by controlling the sea as a dispersed network force with the ability to deliver unprecedented offensive power, defensive assurance, and operational independence—is what makes the Navy-Marine team the envy of other navies, as well as our enemies.

### **The 21st Century Marine**

It is our Marines at every level who have kept the Corps successful for the past 229 years. Every Marine is a rifleman...and



more. Our focus today is on fortifying the training and support for our Marines. Their leadership, decision-making ability, intensive tactical training, education, historical and cultural perspectives, innovative equipment, and enhanced lethality are beyond measure. By strengthening our Marine standards, we are raising the complex skill sets required, across the Corps.

To ensure that our Marines have the knowledge, skills, and abilities to take full advantage of the tools at their disposal and prevail against a ruthless, adaptive foe, we will have to make Marines who are up to the challenge. Though there are many pieces to this puzzle, three areas for emphasis stand out.

The first is small unit leadership, particularly at the NCO level, which requires more intense training with an emphasis on weapons, tactics and communications, and decision-making skills engrained with increased authority and responsibility. Expanded training and education are needed to meet emerging challenges, such as language and cultural training for officers and NCOs, which will be difficult to implement, but the payoff in the “small wars” of the future will be invaluable. Increased schooling in small wars—counterinsurgency, counter-terror, coalition operations, and interagency issues—as well as urban operations training is needed.

We must also close the “digital divide” in our equipment arsenal by providing immediate digital access to relevant information at all levels, from Joint Force Commander (JFC) to squad leader. Additionally, we must provide small units with the tools to win on tomorrow’s battlefield, including night-vision devices, posi-



tion-location indicators, gear for identifying friend-or-foe, beyond-line-of-sight equipment, on-the-move communications packages, and lightweight targeting gear.

As we develop the best combination of capabilities, the role of experimentation is crucial. Our Warfighting Lab has the lead for testing and exploring our concepts, as well as helping the Corps’ senior leadership determine the most effective combination of doctrinal, organizational, equipment, training, and leadership development changes to transform the Corps and produce the 21st century Marine.

Building upon our core competency of warfighting excellence, the 21st century Marine will fulfill the need for speed in execution, the need for flexibility in organization and employment, and the need for agility in thought. The 21st century Marine will be prepared to prevail in the war on terrorism, engage globally and respond immediately, and decisively engage both nontraditional and traditional threats.



### **MAGTF Combined Arms Capabilities**

The 21st century Marine Corps must continue to preserve its core values with a laser-like focus on the warfighting excellence of combined arms MAGTFs—ensuring that we remain a responsive and respected national security instrument that is trusted by our allies and partners, interoperable with our joint partners and sister services, and feared by our nation’s enemies.

The enhanced speed, agility, and flexibility of the MAGTF, with a wide range of options for employing forces, will allow us to meet many expected and unanticipated threats. Marine forces—who are self-confident, well trained and educated, and sure of themselves, their leaders, and their equipment—will be prepared to survive and succeed in battle. These combined capabilities will ensure that the Corps can meet future challenges and that future MAGTFs will continue to provide agile, flexible, and responsive combined arms forces to JFCs.

Tomorrow’s MAGTFs will be able to lead at each level, either from CONUS or from an unobtrusive sea base offshore, and must contribute to the joint fight.

Operations Enduring Freedom and Iraqi Freedom highlight the capabilities of the 21st century Marine. But these operations also point the way to adjustments, refinements, and new areas of study. The opportunity to capture lessons learned from current campaigns and influence the ongoing DoD transformation is one that we cannot afford to miss.

### **Exploiting Technology**

Capitalizing on lessons learned and transforming the 21st century Marine Corps means making changes that are not only grounded in our core competencies and expeditionary ethos, but that are informed by a thoughtful understanding of evolving circumstances and opportunities. It is this unflinching focus that will allow the Marine Corps to build upon our past success and project capabilities that will be required to meet future challenges.







While our core values remain constant, we will change the way we conduct operations. Our warfighting concepts will outline the way ahead as we innovate for the future. By exploiting technology and producing the highly competent 21st century Marine, we will make our future Marine Corps even more effective and capable than it is today.

To realize the Marine operational vision, a number of technological enhancements are required.

The enhanced aviation capabilities of the new LHA (R) and a new generation of Maritime Prepositioning Ships, complemented by a family of high speed connectors, will dramatically increase the capabilities and utility of future sea bases, expanding the range of options for the National Command Authority. Fielding the tilt-rotor MV-22 Osprey and Joint Strike Fighter (JSF) will extend the range and flexibility of future MAGTFs, while a host of improved communications, navigational, targeting,

and data processing tools will enhance the capabilities of Marine units from the squad to the MEF level.

The Expeditionary Fighting Vehicle (EFV) will significantly enhance our ability to exploit maneuver from the sea, as well as exponentially increase the combat effectiveness and lethality of our Ground Combat Element ashore. The integrated Marine Expeditionary Rifle Squad System (MERS) is being developed consistent with our major concepts to ensure that tomorrow's Marine has the tools to succeed on the complex battlefields of the 21st century.

While the tools of tomorrow are being developed, the Marine Corps must continue to ensure the readiness of its existing equipment.

To that end, the Marine Corps faces challenges in refurbishing and reconstituting equipment that has seen hard use and battle damage in past and present operations. The Corps is taking maximum



advantage of service-life extension programs (SLEP) and upgrades to maintain and improve key MAGTF equipment and aircraft. These include the CH-53 Sea Stallion, AH-1 Cobra, and UH-1 Huey helicopters; the Light Armored Vehicle (LAV), AAV Family of Amphibious Assault Vehicles; and, EA-6B Prowler.

Until new technologies and transformational systems are fielded, the Marine Corps continues to ensure the readiness of its forces and infrastructure by exploiting the most formidable capability in its 21st century arsenal—the sea base.



Through the sea base, the Expeditionary Strike Force is able to assemble within the Joint Operations Area, providing a “place” for surge forces to flow to and through. The future high speed platforms will provide the United States with an option to rapidly initiate Joint Forcible Entry Operations within 10 to 14 days, with a reduced demand on our strategic airlift. This capability supports the Joint Task Force in seizing the initiative.

Within the next decade or so, the MEB should be capable of closing directly on the sea base via high-speed strategic sea-lift or surge carrier support to move personnel and helicopters. At-sea arrival and assembly will enable sea-based forces to maneuver directly to the fight. This concept of employment does not rely on the availability of an advanced base, but would exploit the availability of an advanced base should one exist.

MPF (Future) provides a vision of how next-generation MPFs will be employed and deployed in forward-presence and power-projection across the full range of military activities. Building on lessons learned in numerous MPF exercises and operations, as well as the ideas contained in Operational Maneuver From the Sea, MPF(F) will be characterized by enhanced force closure, indefinite sustainment, amphibious task force integration, and force protection. Future MPFs will be ideally suited for the full range of warfighting and humanitarian missions.

A forward-deployed ESG with MEU(SOC)s will provide the capability for immediate response, whether in generating or exploiting actionable intelligence, employing organic and/or joint fires, or establishing a command-and-control capability.

The rapid deployment of a MPF(F) MEB will enable the rapid execution of joint forcible-entry operations, further enabling and sustaining follow-on joint force operations ashore. The MEB will be organized, trained, and equipped to prosecute operations across the full range of military activities. The Marine Expeditionary Force, with much of its administrative and



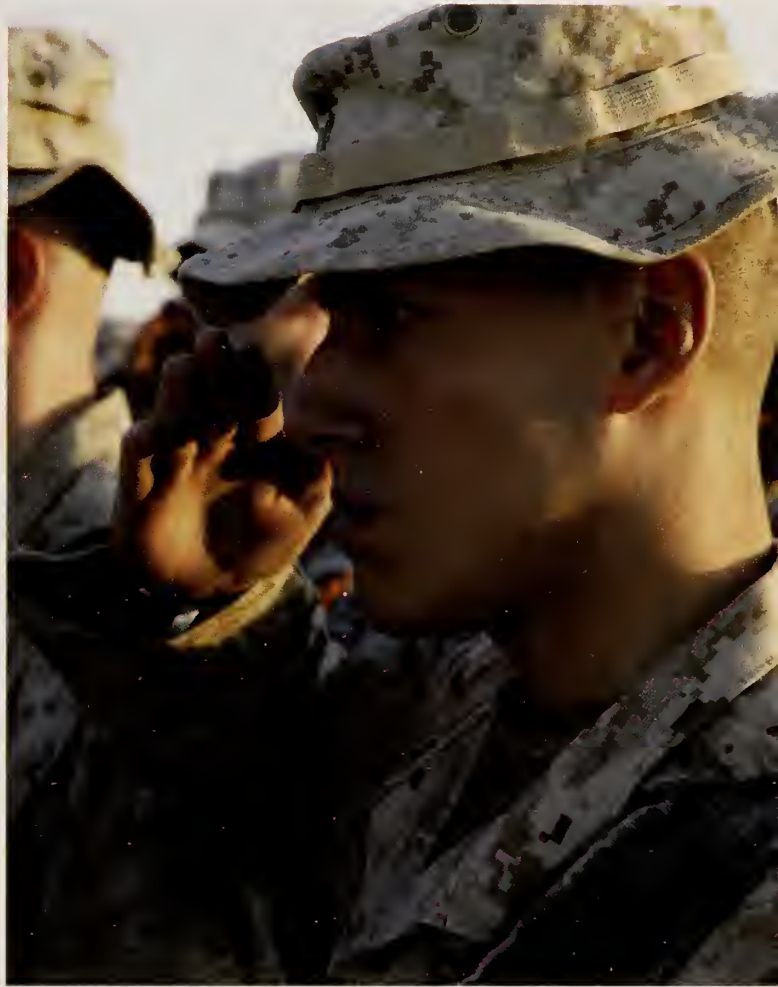
logistics tail afloat in an offshore sea base, will conduct decisive operations. Once operational level objectives are secured, the MEF will reconstitute and redeploy, ready for the next contingency.

Finally, it's important to note that while we can win today's battles, we must always be prepared to defeat our nation's future foes. Thus, we must continue to ensure that we are responsive to new threats. The dangerous environment emerging in the 21st century demands increased speed, flexibility and agility that must be provided by tomorrow's Marines. Accordingly, the Marine Corps must develop future capabilities to meet these operational demands on a global basis.

### **From Vision to Reality**

Guided by *Sea Power 21* and *Marine Corps Strategy 21*, the Marine Corps is adapting to meet future challenges and remain a vital part of the Joint Warfighting Team. Throughout our nation's history, Marines have been a formidable fighting force that has tailored itself to face new global and battlefield situations.

"We have fought in every clime and place," proclaims the Marines' Hymn, "where we could take a gun." From the time the Continental Congress ordered the formation of two Marine battalions on November 10, 1775, Marines have engaged in nearly all of our nation's battles. Marines helped win our independence from Britain, fight the Barbary pirates, maintain the Union, wage two World Wars, and carry out campaigns in Central America, Korea, Vietnam, Afghanistan, Iraq, the Horn of Africa, and the Philippines—to name a few. In the coming years, America's military will



be called upon to operate across an ever-expanding spectrum of conflicts around the world.

In 2005, Marines are engaged against rogue regimes, radical insurgents, and religious extremists. Suicide bombings, kidnappings and beheadings epitomize the 21st century need for the United States Marines. As our enemy becomes more barbaric, as the war on terror becomes more extreme, and as our forces face unfathomable terrorist strategies, the emphasis on the Corps—as America's premier force in readiness—is greater *now* than ever before.





## WARFIGHTING CONCEPTS, EMERGING & ENABLING CAPABILITIES

### Warfighting Concepts

#### Part 1

The Navy-Marine Corps Team is engaged in a focused, long-term transformation that will allow us to respond to a changing national security environment. This transformation is dedicated to greatly expanding the worldwide, sovereign options available to the President of the United States across the full spectrum of warfare, by exploiting one of our nation's asymmetric advantages—control of the sea. To this end, naval transformation is centered upon Seabasing—the concepts and capabilities that exploit our command of the sea to project, protect, and sustain integrated warfighting capabilities from the maritime domain.

# Naval Vision and Transformation

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**S** seabasing is a national capability and the overarching transformational operating concept for projecting and sustaining naval power and selected joint forces. It assures joint access by leveraging the operational maneuver of sovereign, distributed, and networked forces operating globally from the sea. Seabasing unites our capabilities for projecting offensive power, defensive power, command and control, mobility, and sustainment around the world. The inherent mobility, security, and flexibility of naval forces provide an effective counter to emerging military and political limitations on U.S. overseas access. Seabasing reduces joint force operational dependence upon fixed and vulnerable land bases, offering joint force commanders increased freedom of action to deploy, employ, and sustain forces at a time and place of our choosing. Seabasing and the supporting tools we are developing will usher in dramatic new ways of employing naval forces to deter conflict and, when required, to wage war.

## Transformation and Naval Force Development

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The Navy-Marine Corps Team's transformation encompasses and integrates powerful extensions to current joint capabilities, as well as a range of innovative new capabilities. Just as the Department of Defense's transformation strategy is "hinged" upon the Joint Operational Concepts (JOCs), enhanced naval capabilities are based on a family of naval documents that provide the conceptual basis for how the Navy-Marine Corps Team will operate as an integrated naval force in a joint and coalition environment through 2020. The Navy-Marine Corps Team—with its two distinct armed services, core competencies, and cultures—is proud to serve as a model for what can be achieved by different organizations working toward common ends.

*Naval Power 21* is the Department of the Navy's vision statement that guides and supports naval transformation. Fusing the concepts, capabilities, and core competencies expressed in the Navy's vision document *Sea Power 21*, the Marine Corps' vision document *Marine Corps Strategy*



21, and the Marine Corps' capstone concept Expeditionary Maneuver Warfare (EMW), Naval Power 21 charts the future course for the Navy-Marine Corps Team and becomes operational through the Naval Operating Concept for Joint Operations, which is described later.

*Naval Power 21* envisions the Navy-Marine Corps Team continuing to control the sea and project power and U.S. influence beyond the sea, as part of an overall joint effort. Our forces will use the sovereignty of the sea to operate without restriction, and our forward expeditionary nature will provide persistent warfighting capabilities and sustained American influence wherever we may be called to deploy. Naval Power 21 looks to enhancing four inherent qualities of U.S. naval forces: decisiveness, sustainability, responsiveness, and agility.

The Navy and Marine Corps have defined their unique contributions to *Naval Power 21* in their respective vision documents. *Marine Corps Strategy 21* focuses upon the Corps' expeditionary, combined arms character and the drive to enhance our strategic agility, operational reach, and tactical flexibility. These capabilities will allow us to continue providing U.S. regional combatant commanders with tailored, interoperable Marine Air-Ground Task Forces (MAGTFs) that can respond quickly across the spectrum of crisis and conflict, and conduct forcible-entry operations when needed.

*Marine Corps Strategy 21* embraces Expeditionary Maneuver Warfare (EMW) as the capstone concept that provides the basis for organizing, training, and equipping the Marine Corps for current and future operations. In addition, Marine Corps Strategy 21

highlights the Corps' integral role in joint and combined warfare. The strategy calls for us to deepen our strategic partnerships with our sister services and contribute to the development of joint, combined, and interagency capabilities.

For its part, Sea Power 21 establishes the vision of the Chief of Naval Operations (CNO) for how the Navy will organize, integrate, and transform. It details four interdependent and synergistic Naval Capability Pillars (NCPs) that guide the Navy's force development efforts. Condensed titles for broad groups of naval capabilities—Sea Strike, Sea Shield, Sea Base, and FORCEnet, NCPs provide a common construct that the Navy and Marine Corps use together to develop the broad array of capabilities required to transform the Seabasing concept into an operational reality.



# Naval Operating Concept for Joint Operations

The Naval Operating Concept (NOC) for Joint Operations provides the common overarching guidance for the development of future Navy and Marine Corps capabilities and forces in conjunction with our *Naval Power 21* transformational vision. The NOC describes how the naval services will operate across the full range of joint military operations in the near-, mid-, and far-term, and it provides a framework for developing new or existing naval capabilities and integrating them into existing and emerging Joint Operating Concepts.

U.S. defense strategy calls for joint forces capable of coordinated joint military operations to assure allies, dissuade adversaries, deter aggression, and decisively defeat any enemy. More specifically, the joint force must be capable of defending the United States, deterring aggression in four critical regions of the world and defeating adversaries in two conflicts, while retaining the option for decisive victory in one (referred to as the “1-4-2-1” strategy).

To help meet the demands of this strategy, the NOC describes how the Navy-Marine Corps Team will continue to operate as a

forward-postured, immediately employable force in the joint and multinational environments. The naval services will organize, deploy, employ, and sustain forces to conduct operations exploiting capabilities developed through the interrelated and complementary NCPs of Sea Strike, Sea Shield, Sea Base, and FORCEnet, which are integrated with the tenets of the Marine Corps’ Expeditionary Maneuver Warfare (EMW).

In turn, these naval concepts support a range of complementary Joint Operating Concepts. We will maintain freedom of the seas for joint force use and for safeguarding maritime trade. Naval forces will conduct time-sensitive and sustained strikes when and where required. Theater air- and missile-defense capabilities will deny our adversaries the ability to threaten our forces, allies, or friends over land, as well as in the maritime environment. Navy and Marine Corps forces will deter potential adversaries through the ability to preempt or interdict aggressive action.

Naval forces will be mobile, maneuverable, networked, and distributed. Formations—such as Carrier Strike Groups





(CSGs), Expeditionary Strike Groups (ESGs), and strike or theater ballistic missile Surface Action Groups (SAGs), which are reinforced with Maritime Prepositioning Groups (MPGs) and are capable of merging into an Expeditionary Strike Force (ESF)—will provide a balanced naval force that is able to operate through a maneuverable Sea Base to meet the requirements of our Joint Force Commanders (JFCs). These formations are discussed further in the Global Concepts of Operations segment of this book.



To quickly respond to crises and minimize force closure times, naval forces will continue to be shifted rapidly between theaters. Innovative training and force planning will enable them to sustain a heightened state of readiness to reinforce other forward-deployed naval or joint forces. The physical presence of these naval forces may prevent crises from expanding or mitigate an adversary's ability to deploy and integrate anti-access capabilities. The ability to project power from the sea throughout and beyond the littoral regions—including conducting forcible-entry operations—allows the joint force to set initial conditions, preempt hostile action, and decisively defeat an adversary.

Naval forces will minimize the need for host-nation support by providing a sustainable, sovereign sea base that is relatively free from diplomatic and political constraints, thus limiting the impact of area-denial strategies. Moreover, these forward operating forces will have the ability to leverage national assets through a “reach-back” capability. They will be supported by, and provide support to, a persistent, inte-



grated, and tiered joint intelligence, surveillance, and reconnaissance sensor network. Enabled by FORCEnet, they also will have the capability to serve as the nucleus of, and provide an operating base for, a Joint Task Force (JTF) headquarters.

Forward operation provides joint forces with the situational awareness necessary to understand regional security environments and operating cultures, while laying the foundations for joint and multinational interoperability. Naval power from the sea can be leveraged through all phases of a joint campaign and in the diplomatic initiatives that may precede it. Forward deployed forces, complemented by forces rapidly surging from the continental United States or other theaters, provide decision-makers with credible and flexible deterrent options, as well as an immediately employable combat capability.

With hostilities increasing, JFCs that employ naval forces at the operational level can project massed offensive and defensive combat power from the sea, at the time and place of their choosing. As required by the campaign plan, naval forces can conduct forcible-entry operations to secure the necessary area and infrastructure, thus enabling additional joint or multinational forces to be introduced. With naval forces, the JFC can compel an adversary to disperse forces to defend against all possible points of entry or to expose forces to counter the threat. The ability of sea-based forces to attack, rapidly withdraw, maneuver, and attack again will force even a numerically superior enemy to react, creating opportunities for joint-force exploitation.

With FORCEnet, the sea base will significantly increase the ability of the joint

force to command and control, project, support, and sustain forces throughout the area of crisis or conflict. As a crisis expands, the sea base can be scaled in size and capability to meet the needs of the JFC. Follow-on joint forces can augment forward deployed forces in any region, with rapidly deploying Navy and Marine Corps forces optimally configured for this reinforcing mission.

### **Naval Transformation Roadmap**

The Naval Transformation Roadmap (NTR) identifies the most significant of the enhanced naval capabilities required to support the NOC, and it outlines the steps the Navy and Marine Corps are taking to achieve them. Using the NTR as an overall guide, the Navy and Marine Corps each rely on distinct force development methods that allow us to maximize the value of the core competencies we bring to the joint force. The Navy's Naval Capability Development Process (NCDP) includes extensive participation by Navy and Marine Corps warfighters to identify, validate, and prioritize Navy capabilities required by the joint force. The Marine Corps' Expeditionary Force Development System (EFDS) produces the capabilities defined in the singular EMW Capability List for integration across the entire MAGTF. Far from being merely equal, however, the NCDP and EFDS are mutually supporting, with defined interconnections between the two. The Navy-Marine Corps Team then utilizes a common force development construct, the NCPs, to allow us to identify capabilities of common interest and joint importance.

Sea Shield describes the capabilities that extend precise and persistent naval defen-





sive capabilities, not only throughout large maritime areas but also deep over land, to protect joint forces and allies ashore. Sea Shield will assist the joint force in operating effectively, despite adversary efforts to deny theater access to U.S. forces. It will achieve these goals by exploiting global sea control to defeat enemy area denial threats, including aircraft, missiles, small littoral surface combatants, mines, and submarines. Sea Shield helps assure allies, deter adversaries, and generate operational freedom of action for the projection of naval and joint power.

Sea Strike describes the naval capabilities to project dominant and decisive offensive power from the sea in support of joint objectives. These capabilities include and integrate long-range, precise aircraft and missile fires; large-volume covert strike capability; high-tempo decisive maneuver; Naval Surface Fire Support (NSFS); maritime special operations; and information operations to capitalize on the strategic agility, operational maneuverability, precise weapons employment, battlespace influence capabilities, and persistent sustainment of naval forces. By providing full con-

nectivity to, and the core of an early in-theater network backbone for, a powerful grid of national, joint, and sea-based sensors, the immediately employable naval elements of the joint force will be able to degrade the enemy's ability to effectively command and control, and offer an array of capabilities to strike or assault with speed measured in minutes, precision measured in a few meters, and volume of fire measured in many hundreds of fixed or mobile aim-points struck per day.

Sea Base describes an inherently maneuverable, scalable aggregation of distributed, networked platforms that enable the global power projection of offensive and defensive forces from the sea, and includes the ability to assemble, equip, project, support, and sustain those forces without reliance on land bases within the Joint Operations Area.

Sea Base capabilities allow joint forces to exploit the maneuver space provided by control of the sea. Sea Base capabilities will minimize limitations imposed by reliance on overseas shore-based support and max-





imize the ability of the joint force to conduct sustained, persistent combat operations from the maritime domain. These capabilities will also enable the transformed joint force to exploit our nation's asymmetric advantage in the battlespace.

FORCEnet will provide the open architecture and building blocks that integrate sensors, networks, decision aids, weapons, warriors, and supporting systems into a highly adaptive, human-centric, comprehensive system that operates from sea to space and from sea to land. By facilitating

comprehensive battlespace awareness, it will support the attainment of dimensional superiority by geographically dispersed forces as they execute a wide variety of missions across the entire range of military operations. It is focused on accelerating the speed and accuracy of information gathering, assessment, decision-making, and action at every level of command. FORCEnet includes assured access to networks and information through secure administration of networks and robust Computer Network Defense In-Depth strategies.



## Expeditionary Maneuver Warfare Family of Concepts

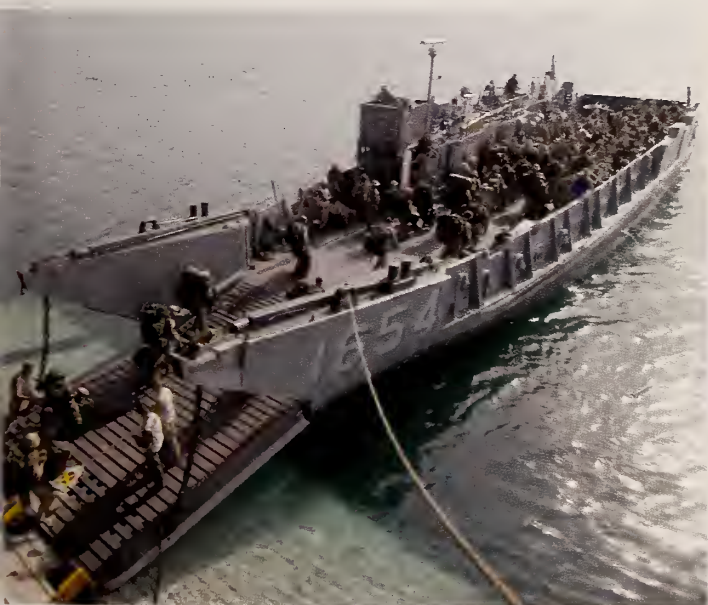
With its tenets embedded in Naval Power 21, Marine Corps Strategy 21, and Sea Power 21, Expeditionary Maneuver Warfare (EMW) is the capstone concept that guides how the Marine Corps will organize, deploy, employ, and sustain its forces today and in the future. Capitalizing on the Marine Corps' philosophy of maneuver warfare and its expeditionary heritage, EMW emphasizes strategically agile and tactically flexible Marine Air-Ground Task Forces (MAGTF) with the operational reach to project power directly against critical points in the littorals and beyond. EMW integrates our operational, functional, and enabling concepts, and it describes the relationship between them.

EMW prepares the Marine Corps to move beyond traditional "amphibious operations," in the narrow sense, toward "expeditionary warfare" with a broader range of operational capabilities, and organizational, deployment, employment, and sustainment methods. EMW builds upon, rather than amends, the previous conceptual and doctrinal work that the Marine Corps has developed. Consequently, it embraces Operational Maneuver from

the Sea (OMFTS), Ship-to-Objective Maneuver (STOM), Sustained Operations Ashore (SOA), Other Expeditionary Operations (OEO), as well as the overarching transformational concept of Seabasing and other functional concepts. EMW preserves the MAGTF as the central organizational construct, while providing commanders guidance for improvement in the other integrating concepts of deployment, employment, and sustainment.

### Operational Maneuver from the Sea

Operational Maneuver from the Sea applies the principles and philosophy of EMW to the sea space. In crafting OMFTS, the Marine Corps codified the many lessons of history regarding how command of the sea can create an operational advantage through a maneuver warfare approach. OMFTS focuses on the littoral region at the operational level of war. Operational maneuver is conducted with a reactive adversary in mind and is designed to place

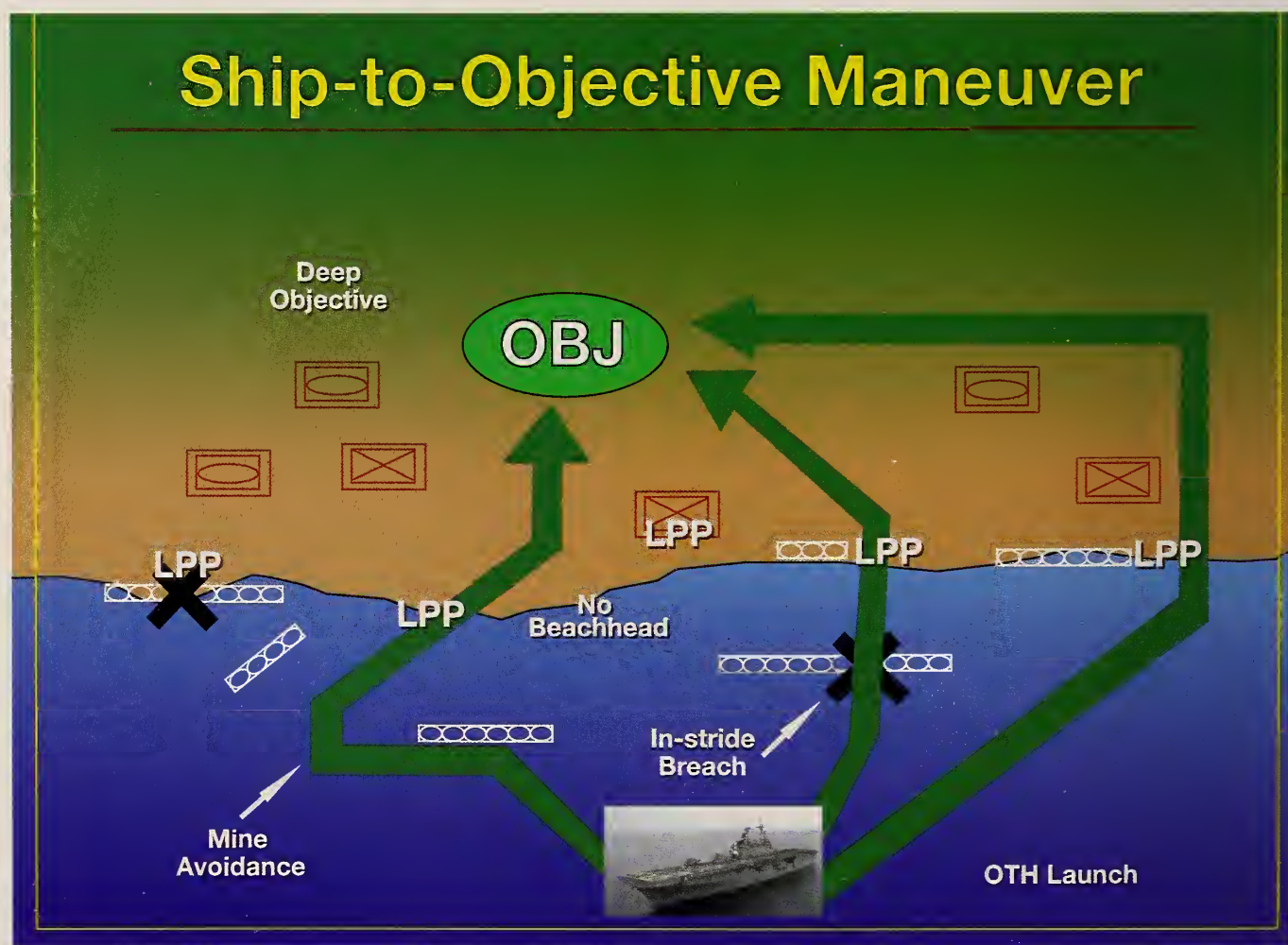




the enemy in a dilemma, at positional disadvantage or vulnerable to surprise. The ability to strike from the sea at the time and place of our choosing compels the enemy to defend the length of his coast. The capability provided by OMFTS forces the enemy to disperse the force throughout the littoral region and renders him vulnerable to defeat in detail. If the enemy fails to dissipate his combat power to guard against our capability and remains concentrated, then naval forces can maneuver opportunistically through the gaps in his defenses to strike at critical infrastructure and vulnerabilities. OMFTS enables naval forces to redefine the battle space. By attacking from an unexpected or new direction, naval forces can have decisive impact on the enemy scheme of maneuver.

## Ship-to-Objective Maneuver

Marine Corps forces have long provided a scalable, tailorable, and expeditionary combined-arms option, enabling joint commanders to deal with a wide range of contingencies. For decades, however, Marine power projection has included a deliberate buildup of combat power ashore. This buildup required the establishment of a force beachhead, with relatively fixed fire support, logistics, and command-and-control positions located ashore. Only after naval forces fought ashore and established a beachhead would the MAGTF begin to focus its combat power on the joint force's operational objective. A combination of naval initiatives in advanced mobility, fires, and sustainment capabilities, leveraging





substantially enhanced information connectivity, will enable future Marine forces to be employed in a dramatically different manner, making them an even more effective tool of national power.

STOM is a transformational tactical application of enduring naval capabilities for OMFTS that exploits each of the enhanced capabilities described by Expeditionary Maneuver Warfare. Enabled by persistent, responsive, and dynamic Sea Bases, forward deployed in international waters, naval forces executing STOM will be able to project MAGTFs directly to critical operational objectives located deep inland, dislocating our adversaries both in space and in time. STOM includes combined arms penetration and exploitation operations from over the horizon, by both air and surface means, with forces moving rapidly to operational objectives without stopping to seize, defend, and build up beachheads or landing zones.

STOM provides the Navy-Marine Corps Team with an enhanced sea-based forcible entry capability, optimized to enable the introduction of follow-on Air Force, Army, and multinational forces. In combination with other joint forces, naval forces capable of operational maneuver and STOM can also provide the joint force commander with Operational Maneuver Elements, ideal for creating dilemmas for our adversary during sustained operations ashore. Because naval forces able to conduct STOM will be able to project power more swiftly than ever before, they will also be able to “kick down the door” that the enemy’s defense presents, and preclude him from effectively integrating his anti-access defenses as crises threaten.



### Seabasing

Seabasing is a national capability and the overarching transformational operating concept for projecting and sustaining naval power and selected joint forces, which assures joint access by leveraging the operational maneuver of distributed and networked forces operating globally from the sea. The concept unites our capabilities for projecting offensive power, defensive power, command and control, mobility and sustainment around the world. As detailed in the Navy-Marine Corps Concept Enhanced Networked Seabasing (ENS), Seabasing enables and integrates OMFTS and STOM by employing the sea base as a means to support naval fire and maneuver at sea, in the littorals, and beyond. This combination of operational and tactical combined-arms capability, which gives us the ability to attack laterally as well as in depth, confronts our adversary with an operational problem he cannot solve.

### Future Sea Base

The sea base is a scalable aggregation of distributed and networked platforms that

provides for the assembly, equipping, support, and sustainment of offensive and defensive power-projection forces from the sea, without reliance on land bases within the Joint Operations Area (JOA). The platforms composing the Sea Base are configured and tailored based on operational requirements and may include elements of an Expeditionary Strike Group (ESG), Carrier Strike Group (CSG), Maritime Prepositioning Group (MPG), high-speed connectors, or other theater assets. The Sea Base will exploit the maneuver space provided by the sea to enable and conduct joint



operations at a time and place of our choosing. A number of qualitative improvements distinguish the future Sea Base from our current capabilities. As described in ENS, they include:

#### ***Integrated Naval Power Projection***

Fully networked, forward-deployed naval forces and platforms will conduct integrated naval power projection. These forces will use the sea as a means of maneuver and enable a broad range of joint campaign operations. Sea-based operations incorporate, integrate,

protect, and sustain all aspects of multi-dimensional naval power projection, from space to the ocean floor, from blue water to the littorals and beyond—without dependence on land bases within the JOA.

#### ***Network-Enabled C4ISR***

Under our Seabasing concept, naval expeditionary command and control (C2)—integrated into the joint C2 architecture—extends throughout the littorals, from seabed to space, and applies to forces operating at sea and from the sea. Command and control-systems will support naval forces from the point of departure to their objectives and throughout subsequent operations. These C2 systems will facilitate coordinated actions by dispersed forces and assets and enable decision-making at the lowest level to increase operational tempo. The sea-based command-and-control system, in concert with the overarching FORCEnet concept, will also support the functions of a joint task force headquarters.

#### ***Rapid Force Closure***

Another key tenet of sea basing is that forces will close to the JOA by multi-dimensional means, including self-deployment and strategic air, surface, and commercial assets. Reflecting the forward deployment of sustainable, immediately employable, combat-ready forces, the initial naval response to a crisis will likely consist of the ESG and CSG. When ESGs and CSGs combine with a Maritime Prepositioning Force (MPF) Future Squadron, the Marine Expeditionary Brigade (MEB), surface action groups, and the Combat Logistics





Force, the resulting sea base will generate synergy among these elements through the integration of their communication, fire-support, and logistics capabilities.

### *Phased At-Sea Arrival and Assembly*

As the MPF Squadron moves to the objective area, the transformational capability resident within MPF (Future) platforms enables phased arrival and assembly. The ability to move directly to the sea base assures the rapid deployment of MEB-sized forces and selected joint forces in as few as seven days, without the need for host nation facilities within the JOA. These forces will arrive at locations en route to the objective area via strategic lift and self-deployment, then move directly to the sea base using intra-theater assets, such as high-speed vessels and tilt-rotor aircraft. Supported on their way by networked command-and-control systems, which feature advanced collaborative planning and rehearsal technologies, these forces will arrive in the objective area ready for immediate employment.

### *Selective Offload*

Unlike current MPF Squadrons, prepositioning ships of the future sea base will be able to conduct a selective offload of specific equipment and supplies to tailor general-purpose forces for specific missions. Regardless of whether the mission is a logistics-intensive humanitarian operation or a large-scale ship-to-objective maneuver in a major contingency, selective offload will facilitate the employment of an optimized force package.

### *Persistence and Sustainment*

The traditional naval qualities of persistence and sustainment—enhanced by advanced force-wide networks—underpin the staying power and flexibility of the sea base. Naval platforms can stay on-station, where they are needed, for extended periods of time. Regional support bases sustain the sea base via strategic logistics pipelines from the United States and elsewhere. The at-sea maneuverability of the sea base, coupled with advanced underway replenishment technologies and techniques, will ensure force readiness over time.





### *Reconstitution at Sea*

Finally, reconstitution at sea enables the rapid reemployment of a fully capable naval force for subsequent operations. Once recovered at the sea base, onboard logistics capabilities will allow MAGTFs to replace, re-equip, resupply, and refurbish personnel and equipment in their constituent units. While being replenished, these forces can simultaneously be task-organized for new missions, and operationally repositioned and redirected toward new objectives in the area of operations. At-sea reconstitution

optimizes MAGTF employment as an Operational Maneuver Element by the JFC. seabasing will provide our nation with unprecedented versatility and flexibility to exploit the freedom of the high seas, relatively unconstrained by political and diplomatic restrictions, for rapid deployment and immediate employment. It will be a key to national success in this new international security environment, and to our ability to meet and defeat our adversaries in the 21st century.

### **Sustained Operations Ashore**

When possible and advantageous, MAGTF commanders will exploit sea-based capabilities. When necessary or more efficient, they will utilize land-based operations, and consequently MAGTFs must retain the capability to sustain operations from land bases. Throughout this century, Marine forces have been called upon to operate alongside Army and allied forces in sustained joint campaigns. MAGTF participation in Sustained Operations Ashore (SOA) will be every bit as likely in the 21st century. However, the nature of such participation will be different. SOA envisions the MAGTF





remaining a general purpose force, but one capable of executing a series of precise, focused combat actions rather than primarily participating in continuous, methodical ground operations. By capitalizing on its unique sea-based character, the MAGTF not only remains the nation's premier forcible entry force, but establishes itself as the force of choice for decisive operations, as well. Versatility in basing options ensures that Marines will be capable of mounting sustainable operations in "any clime or place."

### Other Expeditionary Operations

Other Expeditionary Operations is a draft operational concept that is intended to assist in visualizing how the Marine Corps will conduct Military Operations Other Than War (MOOTW). While the two other operational concepts, Operational Maneuver from the Sea and Sustained Operations Ashore, focus on operational maneuver and long-term combined-arms combat operations above and on the ground, OEO describes the strategic environment in which MAGTFs will operate, as well as the breadth and increasing complexity of the missions and tasks they will perform, and the capabilities they will require when performing MOOTW. The basic tenets of EMW, the Corps' fundamental approach to warfighting, are as applicable to OEO as they are to the other operational concepts. The Corps' emphasis on speed and tempo, the importance of identifying and applying strength against enemy vulnerabilities, and the focus on supporting the commander's efforts in dynamic situations are valid across the range of military operations. OEO stresses the importance of dynamic decision-making under conditions of ambiguity, and the need to create and exploit opportunity.



### Information Operations

Information Operations (IO) at all levels must be carefully planned and fully integrated. MAGTFs must be organized, trained, and equipped to conduct IO in support of a national or theater campaign and in direct support of combat operations. From the Marine Corps' perspective, IO is not a warfighting function in its own right; it is an integrating concept that facilitates the warfighting functions of command and control, fires, maneuver, logistics, intelligence, and force protection. It is not simply another arrow in the MAGTF commander's quiver, but is a broad-based integrative approach that makes the bow stronger. This distinction is key to our belief that IO does not, and will not, replace any of the time-tested warfighting functions—rather, it will enable each of them. Thus, the focus of Marine Corps IO will be upon the information-oriented activities that will best support the tailored application of combat power and the joint force commander's needs. Information Operations, whether shaping the battlespace to deter conflict or enabling decisive maneuver, must be recognized as an essential and potentially dominant activity.

## Global Concept of Operations

The Naval Operating Concept for Joint Operations, and the dispersed nature of the ongoing Global War on Terrorism, requires maritime force packages able to simultaneously generate combat power around the world and across the entire spectrum of conflict. Like the threat, these forces will be dispersed, yet they will remain fully netted together and seamlessly integrated into joint task forces. The Navy's former operational organization—which was built around aircraft carrier battle groups, surface action groups, and amphibious ready groups (ARGs) would not allow the Navy to meet these demands. Hence, the Navy and Marine Corps are reorganizing its forces to form 37 independent strike groups, each able to act as a deterrent to local threats or, if necessary, conduct strikes or raids. The new types of formation include:

Carrier Strike Groups (CSGs) centered on large-deck aircraft carriers accompanied by a smaller number of highly capable surface warships;

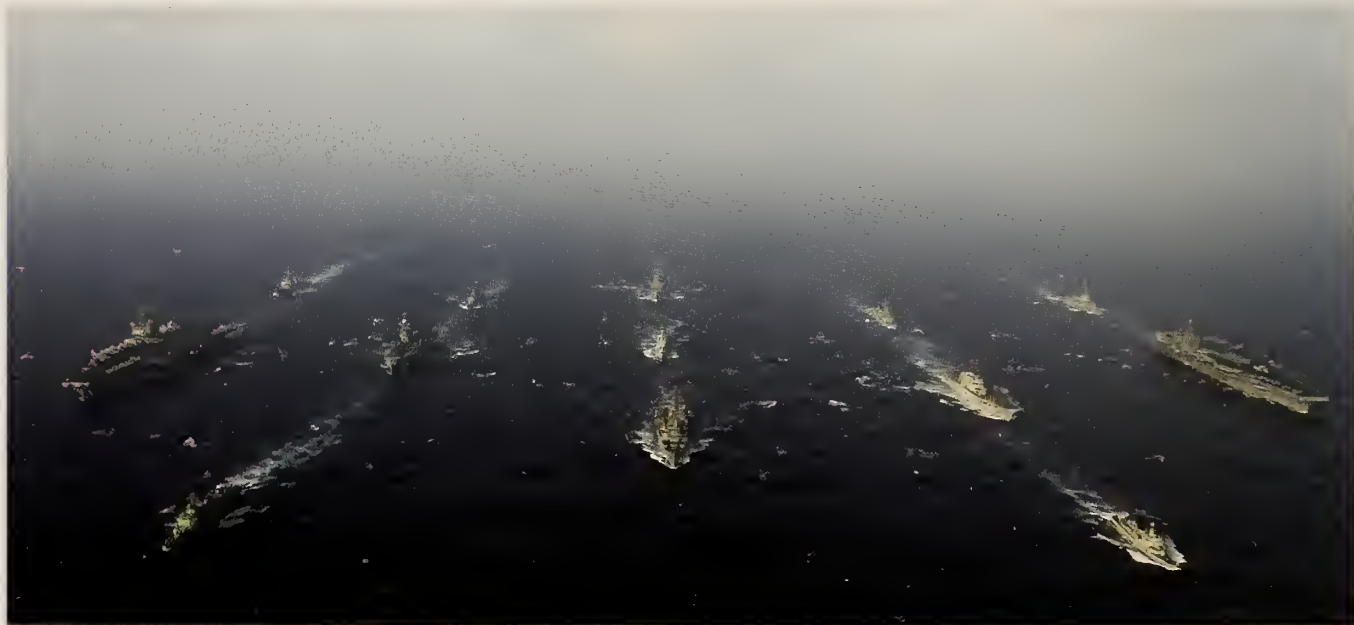
Expeditionary Strike Groups (ESGs) that combine amphibious warships and their embarked MEU(SOC)s with surface warships, submarines, and advanced airborne surveillance platforms;

Strike or missile defense surface action groups (SAGs); and,

Four converted ballistic missile submarines capable of launching large numbers of Tomahawk land-attack missiles.

The ESG concept combines the traditional, multi-mission capabilities of the Marine Expeditionary Unit (MEU) Special Operations Capable (SOC) and ARG with enhanced organic air defense, undersea warfare, and strike capability. This will provide ESGs with the ability to operate independently in low- to medium-threat environments, thereby increasing the responsiveness, operational reach, and strategic impact of the Navy and Marine Corps. In many ways, it will be the most adaptable means of response to a range of situations associated with the Global War on Terrorism.

In the future, ESGs and CSGs will be organized along with Maritime Prepositioning Groups (MPGs) into an Expeditionary Strike Force. MPGs consist of the Combat Logistics Force, Maritime Prepositioning Force (Future) vessels, and a variety of high-speed surface craft,





providing both operational reinforcement and sustained endurance to the ESG, CSG, and theater assets. Together, they will form a sovereign sea base, ready to fully exploit the asymmetric advantage that the Navy-Marine Corps Team provides, by increasing the offensive and defensive power that can be projected and sustained from the sea. □



# WARFIGHTING CONCEPTS, EMERGING & ENABLING CAPABILITIES

## Emerging Capabilities

### Part 2





## Expeditionary Warships



Combined with embarked Marines, naval expeditionary warships provide U.S. leaders with forward-presence and flexible crisis-response forces. They also provide the most formidable expeditionary forcible-entry capability in the world—the development and maintenance of which is the statutory responsibility of the Marine Corps, as directed by Title X of the U.S. Code.

Expeditionary lift requirements are formulated to support the national military strategies, satisfy combat surge demands, and meet day-to-day commitments. The total warfighting amphibious lift requirement for the Marine Corps is 3.0 Marine Expeditionary Brigade (MEB) Assault Echelon (AE), which currently equates to 14 (three-ship) Amphibious Ready Groups (ARGs). The 3.0 MEB AE remains a priority requirement; however, fiscal constraints have limited amphibious force structure to a programmatic goal of 12 ARGs, capable of lifting 2.5 MEB AEs. The current active Navy fleet is only capable of lifting 1.93 MEB AEs.

Large-deck amphibious assault ships, the centerpieces of ARGs/Expeditionary Strike Groups (ESGs) and other expeditionary task forces, are also essential to maintaining amphibious lift and power-projection capabilities. Currently, there are 12 large-deck ships (seven *Wasp*-class LHDs and five *Tarawa*-class LHAs) in service. Congress directed the construction of an eighth *Wasp*-class multi-purpose amphibious assault ship (LHD-8), the *USS Makin Island*, which is currently under construction and will be delivered in FY 2007. LHD-8 will be similar to LHD-1 through LHD-7, but will be powered by gas turbine engines and have all-electric auxiliaries. Upon commissioning of the LHD-8, the Navy will retire one of the five *Tarawa*-class LHAs.

## Expeditionary Assault Ship Replacement

The amphibious fleet is organized for forward presence into 12 Amphibious Ready Groups (ARGs)—which, in turn, become part of Expeditionary Strike Groups (ESGs)—each with three ships. The centerpiece of the ARG is a *Wasp*-class or *Tarawa*-class amphibious assault ship. The five ships of the *Tarawa*-class general-purpose amphibious assault ships (LHA) reach the end of their expected service lives at the rate of one per year from 2011 to 2015. The LHD-8 will replace one of the LHAs, leaving the LHA(R) program to replace the last four *Tarawa*-class LHAs.

In March 2001, the Navy and Joint Staff approved and validated the LHA(R) Mission Need Statement. The office of the Undersecretary of Defense for Acquisition, Technology, and Logistics authorized Milestone “A” Acquisition status for the program, as well as its entry into the Concept Exploration phase in July 2001. Under Department of Defense guidance, the Navy conducted an analysis of alternatives (AoA) study to determine the best method of

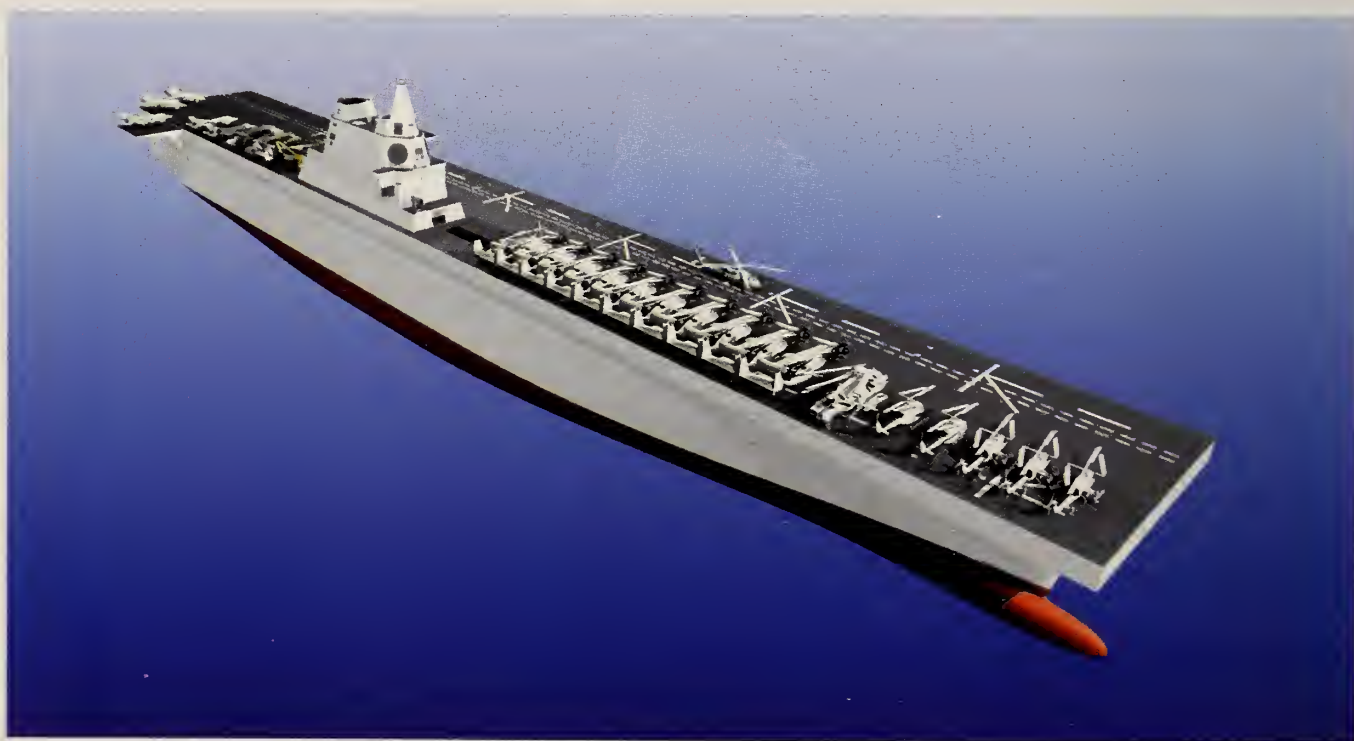
replacing the four remaining LHAs. This study, completed in the summer of 2002, evaluated the following alternatives:

- A repeat LHD-8 with evolutionary modifications;

- The LHD Plug Plus (an LHD-8 modified to be 77 feet longer and 10 feet wider), upgraded to enhance its ability to operate the larger and more capable new-generation amphibious systems; and,

- New ship designs spanning a wide range of size and capability.

Navy and Marine Corps leadership determined that a transformational new design would be the most suitable choice based on cost, capability, and schedule. The first ship is currently scheduled for an FY 2007 contract award and an FY 2013 delivery, with the following ships in the class being acquired every three years. This extended procurement and construction schedule will result in the last *Tarawa*-class LHA being retired in 2022, seven years past its 35-year expected service life.





## San Antonio-Class (LPD-17) Landing Assault Ship



The operational flexibility and capability of the naval expeditionary fleet will be significantly enhanced with the FY 2005 delivery of USS *San Antonio*, the first of 12 new landing assault ships. LPD-17 is the replacement for four classes of older ships—the LKA, LST, LSD-36, and LPD-4—and is being built with a 40-year expected service life. When construction is complete, the LPD-17 class ships will enable the Department of the Navy to move toward the fiscally constrained programmatic goal of 12 Amphibious Ready Groups (ARGs) capable of lifting 2.5 Marine Expeditionary Brigade (MEB) Assault Echelons (AEs). Building the entire LPD-17 class of ships is critical to the aggregate amphibious lift

required to support our war plans. Additionally, LPD-17 cargo and aft vehicle stow capability will mitigate the loss of cargo space inherent in the LHA(R) design.

The *San Antonio*-class will incorporate advanced characteristics for amphibious warships. Each ship will have 699 enhanced berths for embarked Marines, plus a surge capacity of 101 berths. They also will have a vehicle-stowage capacity of 24,600 square feet, cargo-stowage capacity of more than 33,000 cubic feet, and a well deck sized for two Landing Craft Air Cushions (LCACs) or one Landing Craft Utility (LCU). Their flight decks will each be capable of supporting operations by two CH-53E Super Stallions, two MV-22 Osprey tilt-rotor aircraft, or four CH-46E Sea Knight helicopters. The ships in the class will be outfitted with two Rolling Airframe Missile launchers for self-defense and will incorporate design features that present a significantly reduced radar cross-section compared to previous amphibious ships.

The LPD-17 class represents the Navy's commitment to recapitalization in the form of a modernized expeditionary fleet. As such, the Marine Corps supports the Navy's commitment to expeditiously complete the procurement and construction of this class of ships.

## Landing Craft Air Cushion (LCAC)

The Landing Craft Air Cushion (LCAC) is a high-speed, fully amphibious craft capable of carrying a 60-ton payload (75 tons in overload), at speeds in excess of 40 knots, at a nominal range of 200 nautical miles. The LCAC's ability to ride on a cushion of air allows it to operate directly from the well decks of amphibious warships and to access more than 70 percent of the world's beaches, compared with 17 percent for conventional landing craft.

A service life extension program (SLEP) began in late 2000 for the 74 active LCACs, which provides major refurbishment that will extend craft life to 30 years. Craft initially go through a system upgrade that includes the replacement of obsolete radios and radar, the installation of the Enhanced Position Location Reporting System, corrosion abatement, and upgrades of the current skirt system with an improved deep skirt. LCAC SLEP provides engine upgrades and refurbishes the hull, increasing

the performance envelope. Phase II provides a Command, Control, Communications, Computers, and Navigation upgrade, which replaces these crafts' deteriorating and obsolete electronic suites.

An effort known as the Heavy Lift LCAC will be explored to assess the feasibility of increasing the capacity of LCACs to carry up to two M1A1 tanks. The Research and Development R&D objective is to convert an LCAC into a heavy lift platform that can demonstrate and validate the feasibility of the heavy lift concept. This promising R&D effort has merit and deserves support in the FYDP.

Current LCACs become inactive in 2026. R&D is leading to a production program that will develop a new landing craft with advanced technology, designated LCAC Experimental, or LCAC (X), to preserve expeditionary and sea-based fleets of the future.





## High Speed Connector (HSC)

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As detailed in *Sea Power 21 and Expeditionary Maneuver Warfare*, the Chief of Naval Operations (CNO) and the Commandant of the Marine Corps (CMC) envision 21st century Navy-Marine forces operating from a sea base, which uses the sea as maneuver space to provide an unprecedented freedom of maneuver for littoral operations. A family of connectors will be required to network the platforms of the sea base to the advanced base, as well as other platforms within the sea base and follow-on operations ashore. The High Speed Connector provides the critical intra-theater, surface connector capability that will enable the Joint Force Commander to project forces and sustainment at high-speed over operational distances.

In June 2004, the Commanding General, Marine Corps Combat Development Command, signed an Enabling Concept for HSCs. This document provides the basis for further analysis, experimentation, and development of a critical combat capability in support of the sea-basing concept. The Enabling Concept provides a detailed vision of the role of HSCs in enabling the transformational concept of sea basing. HSCs will fill a critical capability gap in the family of sea base connectors, by providing the intra-theater surface connector. The HSC will be capable of self-deploying to the theater of operations and, once in theater, providing a high-speed means to move forces and supplies over operational distances within a theater. HSCs will play a crucial role in all phases of sea-based operations—from deployment through rehabilitation and reconstitution.

Capitalizing on their high speed (40-plus knots), shallow draft (less than 15

feet), and extreme maneuverability, HSCs offer new opportunities and capabilities to the Joint Force Commander.

### Advanced Base to Sea Base

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HSCs will self-deploy from the continental United States (CONUS) or from forward basing sites. Once in theater, HSCs will play a crucial role in closing the force from advanced bases to the sea base. As forces arrive at advanced bases, they will board HSCs for rapid movement to Maritime Prepositioning Force (Future) ships that are en route to the sea base echelon area or are already operating there. HSCs will enable the phased, at-sea arrival and assembly of forces at the sea base, as well as support the continuous flow of logistics to the sea base.

### Within the Sea Base

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HSCs will support the transfer of personnel, supplies, and equipment within the sea base, and enable the distribution and redistribution of assets within the network of platforms making up the sea base. The capability of HSCs to transfer forces at-sea also allows the flexibility to shift forces from the prepositioning platforms of the Sea Base to the strike platforms of the Expeditionary Strike Group (ESG), providing enhanced striking capability of the force in joint forcible entry operations.

### Sea Base to Shore

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HSCs provide the means to link the sea base to the shore and provide the flexibility needed to conduct responsive and tailored sea-based operations beyond the range of organic lighterage and assault craft. HSCs, while lacking the capability to conduct forcible entry operations, will project forces



to austere or degraded ports or offload points, which are otherwise unsuitable for larger shipping. Using amphibious vehicles, HSCs will project forces within employable range from the beach and potentially to beaches in permissive and uncertain environments. Capitalizing on the high-speed and high payload capacities of HSCs, Joint Force Commanders will have the flexibility to maneuver platforms of the Sea Base to areas providing more favorable environmental or threat conditions. Significantly, the sea base will be able to operate at greater distances from the shore, while maintaining responsive throughput rates and an employment posture that allows the sea base to react to emerging requirements ashore.

### **Reconstitution and Rehabilitation**

As the operational or tactical situation develops, HSCs will recover forces to the sea base where they can be reconstituted or rehabilitated in support of future missions. This capability to rapidly recover forces to the sea base gives the (JFC) the ability to maintain a high tempo of operations and force the enemy to react as desired.

While current maritime platforms may possess some of the attributes of HSCs—such as high speed, high payload capacity, or shallow draft—HSCs are transformational, in that they uniquely combine all of these traits into a single platform. Relying on these characteristics, HSCs will link the dispersed, mobile platforms that will constitute the Sea Base.

### **High-Speed Maneuver Over Operational Ranges**

One of the primary attributes of HSCs is their capability to sustain high speeds over operational ranges, while carrying significant payloads. This combination provides a wide range of options and enhanced capabilities to JFC. High speed, high-payload capacity, and the ability to access littorals permits the sea base to project increased throughput at greater distances and provides the JFC a wider range of at-sea offload options. For example, the HSC will enable prepositioning ships to conduct offloads at greater distances from the landing site, thereby allowing the JFC to take advantage of more favorable threat or environmental conditions. Speed is also critical



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in the delivery of high-priority supplies and equipment throughout the networked platforms of the Sea Base, advanced base and forces ashore.

### **At-Sea, Ship-to-Ship Interface Capability**

The HSC's maneuverability and stability, combined with emerging ship-to-ship transfer technologies—such as composite fendering and motion compensating crane systems—will provide an enhanced capability to conduct at-sea transfers of personnel, equipment, and supplies. The capability to conduct at-sea transfers is critical to enabling force closure, phased at-sea arrival and assembly, and selective offload of the prepositioning ships comprising the sea base. Currently, the offload of prepositioning ships is limited by access to host nation infrastructure, specifically deep draft ports, accessible beaches, and favorable weather conditions. HSCs provide a means to mitigate these limitations by combining at-sea transfer capability with the capability to operate in minor and austere ports.

### **Multi-Mission, High-Payload Mission Deck**

An open, reconfigurable mission deck, which is capable of transporting vehicles, cargo and other equipment, is a critical attribute of the HSC. In future highly fluid environments, JFC will require the ability to rapidly transition the HSC to support various missions in support of sea-based operations. The HSC's open mission deck will allow for the embarkation of force modules, ranging from highly capable, task-organized units to tailored sustainment packages for the sea base or forces operating ashore.

### **Increased Littoral Access**

U.S. and coalition forces will increasingly operate in anti-access environments. Access to benign deep-draft ports can no longer be relied upon for the introduction of forces into a Joint Operating Area (JOA). HSCs provide a means to mitigate the anti-access threat by enabling operations in small, minor, undeveloped, degraded, and austere ports. The ability to offload at sites, ranging from quay walls and undeveloped piers to possibly bare coastlines, opens a wide range of offload options for the projection, maneuver, and sustainment of forces, greatly complicates the enemy's anti-access efforts, and will allow for an increased tempo of operations.

HSCs will provide high-speed, highly maneuverable intra-theater surface connectors to the JFC, which are able to deliver tailored, scalable forces in response to a wide range of mission requirements in an increasingly anti-access environment. This fact has been proven through operational employment of HSV-X1 Joint Venture in support of Operation Iraqi Freedom, as well as numerous exercises such as Battle Griffin, Millennium Challenge, West Africa Training Cruise, and Joint Logistics Over The Shore. The Navy and Marine Corps, in cooperation with the Army, are continuing to develop the concept and technologies through the lease of experimental vessels HSV-2 Swift, TSV-1X Spearhead, HSV-X1 Joint Venture, and M/V Westpac Express. These platforms, capable of long-range, open-ocean transits, will redefine the operational time-distance continuum, allowing rapid response throughout any theater for the Marine Corps of the 21st century.

## ANGLICO

Air Naval Gunfire Liaison Companies (ANGLICO) are made up of small unit teams that specialize in all aspects of fire support. Units range from terminal control firepower teams to division fire support coordination centers, the latter of which has intermediate battalion supporting-arms liaison teams and regimental/brigade fire support coordination support.

ANGLICO units will provide Marine Air-Ground Task Force (MAGTF) commanders a liaison capability (with foreign area expertise) to plan, coordinate, employ, and conduct terminal control of fires in support of joint, allied, and coalition forces.

In 2002, the Commandant of the Marine Corps approved the reestablishment of ANGLICO, authorizing a company on each coast and a separate brigade platoon in Okinawa. In 2003, 1st ANGLICO was reestablished at Camp Pendleton, CA. 1st ANGLICO will have a company headquarters and two brigade platoons. In 2003, 2nd ANGLICO was reestablished at Camp LeJeune, NC. 2nd ANGLICO will also have a company headquarters and two active-duty brigade platoons. Each



company will tie in closely with the Reserve ANGLICO units. Operational capability is expected in 2005. 5th ANGLICO, a separate brigade platoon, was stood up in the III Marine Expeditionary Force in October 2004.





## Distributed Operations

In order to capitalize more quickly on our technological advantage in the inherent complexity of the littorals and the anticipated adaptive capability of future enemies present new operational challenges to the Navy-Marine Corps Team. In response, the emerging naval concept for Distributed Operations (DO) is intended to equip Joint Force Commanders with an additive capability to more accurately resolve and immediately respond to ambiguity, while creating confusion for our adversaries. DO are characterized by the ability to physically disperse networked squad-to battalion-sized units over a battlespace extended in both depth and breadth. Contributing to greater situational awareness, capable of precisely directing overwhelming firepower, and readily concentrating to exploit opportunities, Marine forces conducting DO will present a complex puzzle to the adversary and create a competitive advantage for joint warriors.

Like all concepts, DO serves to guide the concentrated development of a range of capabilities. Most obvious, perhaps, are those that will be used to accelerate the speed and quality of networked command and control, collect and disseminate multi-source information, provide mobility and sustainment, and routinely direct precision fires—each around the clock, and in all weather.

More challenging and most critical, however, are those capabilities that will prepare our junior leaders to thrive on a decentralized battlefield. DO requires robust situational awareness, autonomy, and increased freedom of action at lower tactical levels, enabling subordinate commanders to compress decision cycles, seize the initiative, and exploit fleeting opportunities. Training for DO will place a

premium on leadership and decision-making at every level of the Marine Air-Ground Task Force (MAGTF), and will demand extensive education, wargaming, and combat simulation investments.

### Distributed Operations

Concentrated on the forward-deployed Expeditionary Strike Group and its organic Marine Expeditionary Unit (Special Operations Capable), or MEU(SOC), in the near term, the current concept is deliberately focused on its application by naval forces to enable early joint operations. As it con-



tinues to evolve, our concept for DO will substantially enhance the capacity of Naval Expeditionary Forces to meet critical capability gaps of the Combatant Commanders across the range of military operations. Marine forces conducting DO will enable actionable intelligence, shape the battlespace or screen for other forces, and direct precise joint fires. DO will add to our current competencies, rather than replace them, by adding selected advanced command-and-control (C2) and Intelligence, Surveillance, Reconnaissance systems to our equipment, injecting rigorous training that infuses and exploits a “patrolling” mindset, and focusing on the abilities of our small unit leaders.

## Maritime Prepositioning Force (Future)

The Maritime Prepositioning Force (Future)—or MPF(F)—will be the true enabler of primarily sea-based operations. When the MPF(F) becomes operational, the maritime role will expand beyond that of today, which is to provide the equipment to prepare a fly-in force for combat. MPF(F) will provide four required capabilities:

- 1** Force Closure (the capability to marry forces and equipment in a forward area);
- 2** Amphibious Task Force (ATF) Interoperability (the capability to reinforce the assault echelon of an ATF);
- 3** Sustainment (the capability to sustain logistics support of Naval operations); and,
- 4** Reconstitution and Redeployment (the capability to execute in-theater, at sea in order to expedite follow-on missions).

The naval services are exploring several new technology areas during the development of the MPF(F). These include selective on-load and off-load, internal ship systems (including automated warehousing, item/pallet/container operations, roll-on/roll-off systems, and flow patterns),

external ship systems (such as ramps, lighterage, and other craft interfaces), modular system/sub-system concepts, and aircraft interface technologies. Unlike current MPF ships, the MPF(F) ships in a joint sea base will be able to conduct a selective offload of specific equipment and supplies, along with general-purpose forces, for specific missions. Regardless of whether the mission is a logistics-intensive humanitarian operation or complementary support of a large-scale, ship-to-objective maneuver in a major sea-based contingency, selective offload will facilitate the employment of an optimal force package.

Currently, the MPF(F) Program is analyzing alternatives to meet approved requirements. The combination of MPF(F) and amphibious warships will form the foundation of a ready, capable, and sustainable force able to support itself from the sea base almost indefinitely. MPF(F) promises to revolutionize Marine Corps and joint-force deployment and employment. The Marine Corps supports ongoing studies to refine requirements that realize this capability.





## MAGTF Expeditionary Family of Fighting Vehicles and Future Combat System

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The Marine Corps is taking many steps to continue its transformation into the next decade. One example is the Marine Air-Ground Task Force (MAGTF) Expeditionary Family of Fighting Vehicles (MEFFV) program. The timing of this vehicular element of transformation allows the Marine Corps program to leverage science and technology investments by Defense Advanced Research Projects Agency and the Army in the Future Combat Systems program. This approach is designed to generate Army-Marine Corps synergy, while remaining mindful of the unique requirements of the sea-based expeditionary MAGTF.

The MEFFV will provide the Ground Combat Element commander a family of manned ground-combat vehicles configured to capitalize on the joint capabilities available within the integrated Joint Task Force (JTF) in the 2015-2020 timeframe and beyond. MEFFV-equipped units will provide robust, sea-based, tailorable, combined arms forces to the MAGTF and JTF commander. These combined arms units will be capable of a sustained shaping campaign at the operational level and decisive operations at the tactical level. MEFFV-equipped units will be adaptable, operationally mobile, lethal, survivable, and support joint task organization. The

equipment, training, and operating concepts employed by these MEFFV units will contribute to the five capability enhancements identified in Expeditionary Maneuver Warfare, as well as the enhanced command and control (C2) and material interoperability, which are specific goals of the Joint Capabilities Integration and Development System. There will be commonality across both the Army and Marine Corps families of vehicles, while maintaining configurations tailored for the differences in Army and Marine operating environments.

MEFFV fielding is targeted to coincide with end of service times for both the Light Armored Vehicles and M1A1 tanks currently in the Marine Corps inventory. This timing will enable an uninterrupted continuation of the mounted combat capability demonstrated during Operations Enduring Freedom and Iraqi Freedom.

The MEFFV initiative and the family of vehicles it generates will ultimately translate into increased tactical flexibility in the field. Such flexibility is a hallmark of Marine Corps operations and will be critical in future crisis-response and anti-terrorism operations, in addition to our traditional warfighting tasks. The Marine Corps is taking many steps to continue its transformation further.

## Triad of Ground Fires

With the increased range and speed of the Expeditionary Fighting Vehicle and the MV-22 Osprey tilt-rotor aircraft, the breadth and depth of the battlefield is increasing immensely. Consequently, the Marine Corps must have weapons systems with correspondingly greater range, lethality, and tactical mobility than those previously available. A triad of indirect fire-support programs is moving the Marine Corps in that direction.

The first element of the triad is the M777E1 Lightweight 155mm towed how-

itzer, which will replace our current M-198 howitzer beginning in 2005. The M777E1 is a joint Marine Corps-Army effort that will meet or exceed all the requirements of the current system, while reducing its weight from 16,000 to 9,800 pounds. The M777E1's maximum range is 15 miles using unassisted projectiles, or 18 miles using assisted projectiles.

The second element of the triad is the High Mobility Artillery Rocket System (HIMARS). The HIMARS will deliver high volumes of long range rocket artillery in support of the





ground scheme of maneuver. The HIMARS will provide accurate, responsive, general support to reinforce fires at long range, under all weather conditions, and throughout all phases of combat operations ashore. Capable of firing the Multiple Launch Rocket System (MLRS) Family of Munitions (FOM), the HIMARS will fire both precision and area munitions, and is capable of ranges exceeding 36 miles.

The third system of the land-based fire support triad, the Expeditionary Fire Support System (EFSS), will accompany the Marine Air-Ground Task Force (MAGTF) in any expeditionary mode of operations. It will be the primary indirect fires system for the vertical assault element of the ship-to-objective maneuver force. The EFSS will be internally transported by CH-53 helicopter or MV-22 tilt-rotor to allow the greatest range and flexibility of employment.

In addition to acquiring these primary fire support systems, the Marine Corps is developing other key adjuncts to the triad that will enhance the capabilities of the fire support platforms. These programs include sensors such as the Ground Weapons Locating Radar, Target Location Designation Handoff System, and Common Laser Range Finder (CLRF). Additionally, the Improved Position Azimuth Determining System and the Profiler meteorological measuring system will improve location and weather data to ensure first-round accuracy. For the M777E1, the Modular Artillery Charge System will reduce the number of propellant types used, and Multi-Option Fuze Artillery will reduce the number of fuzes currently in the inventory.



Finally, acquisition of M795 155mm high explosive projectiles and variants will increase the lethality and range of our munitions inventory. Ground-based, indirect fires are irreplaceable when forces are joined in close combat. Nothing else is as responsive to the commander's needs, or as reliable. They are not weather-dependent or facility-dependent. As such, they are key components of the reach and lethality of the MAGTF.

## Naval Surface Fire Support Initiatives

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Firepower—including responsive, lethal, and supporting fires from Navy surface ships—is essential in expeditionary operations. A robust, round-the-clock, all-weather, sea-based fire-support capability is vital to the success of naval forces engaged in combat. The current Naval Surface Fire Support (NSFS) capability is inadequate in range, volume, and accuracy for supporting expeditionary operations throughout an extended battlespace. The Navy continues to pursue development and testing of an extended-range, fire-support capability for use by the fleet to support the Marine Corps capstone concept of Expeditionary Maneuver Warfare (EMW). This emerging capability is best described over the near-, mid-, and long-term.

In the near-term, the TACTOM Block IV Tomahawk missile will be capable of providing the Marine Air-Ground Task Force (MAGTF) commanders enhanced capabilities for strikes against high-payoff, time-sensitive targets. When fielded, TACTOM Block IV will have the capability to strike any pre-programmed alternate targets or be redirected to any GPS target coordinates. It also will be able to loiter over a target area and, with its on-board camera, will allow forces on the ground to gather intelligence and conduct Battle Damage Assessments.

Additionally, the Navy Extended Range Munition (ERM) Program anticipates fielding ERM for its 5-inch/62-caliber guns during FY 2008. This munition will permit



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MAGTF commanders to engage targets with volumes of fire of GPS-guided precision weapons from surface combatants over the horizon.

In the mid-term, the DD(X)—equipped with two 155mm Advanced Gun Systems, 600 round magazine, and land attack missiles—will add considerable firepower and flexibility to the Expeditionary Strike Group and Expeditionary Strike Force, beginning in 2013. The AGS, firing the Long Range Land Attack Projectile (LRLAP), will increase the lethal effects of the MAGTF's NSFS fires three-fold, out to 100 nautical miles. The DD(X) will also be the first naval ship designed to integrate counter-fire detection with its own weapons systems and digitally communicate the information to the Supporting Arms Coordination Center for engagement.

Long-term prospects for advancements in NSFS are even more promising. Battlefield

commanders will be able to harness the destructive power of directed energy waves, or Mach 7+ propelled projectile, using electromagnetic energy produced aboard the Navy's future family of all-electric ships, which includes DD(X) and CG(X). Electromagnetic guns could hurl a 35-pound projectile at extremely high speeds, which translate into highly destructive results in the target area. In addition, free electron lasers have the potential to provide protection against theater ballistic and cruise missile attacks.

During 2004, work began to formally document the attributes of NSFS capabilities in accordance with the Joint Capabilities Integration and Development System process. With continued commitment, the Marine Corps and the rest of the joint community will once again be able to rely upon NSFS as a readily-available, all-weather fire-support system during forcible-entry operations.

## MV-22 Osprey and VMX-22

The MV-22 Osprey tiltrotor is an advanced technology, vertical/short takeoff and landing, multi-purpose tactical aircraft that will replace the current fleet of Vietnam-era CH-46E and CH-53D aircraft currently in Marine Corps service. The MV-22 will join the Expeditionary Fighting Vehicle (EFV) and Landing Craft Air Cushion (LCAC) as an integral part of the Seabasing pillars necessary to execute Expeditionary Maneuver Warfare and, as such, procurement of the Osprey remains the Marine Corps' No. 1 aviation acquisition priority. The MV-22's specific missions will include expeditionary assault from land or sea, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistic support, and special warfare.

The MV-22's 38-foot prop-rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the aircraft into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22's design also incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, and digital cockpits. The Osprey is capable of carrying 24 combat-equipped Marines or a 10,000-lb. external load. With 2,100-nautical-mile range with single aerial refueling, the aircraft also has a strategic self-deployment capability.

The MV-22 is a multi-mission aircraft designed for use by all the armed services. The Marine Corps, Navy, and Air Force are committed to the fielding of this unique aircraft. MV-22 aircraft will be produced in three blocks, as follows:

**Block A** series aircraft will provide an improved aircraft with which the Marine Corps can train and fight. This includes a software enhancement, nacelle reconfiguration, and additional reliability and maintainability improvements.

**Block B** series aircraft will provide further improvements in effectiveness and suitability for operators and maintainers to include improved access to the nacelle for inspection purposes and substantial R&M improvements.

**Block C** configuration aircraft will incorporate mission enhancements.

Flight-testing of the MV-22 was delayed in the aftermath of the two mishaps in 2000 and resumed in May 2002 to address the aeromechanical issues raised by these accidents. Included in the now on-going testing process is a rigorous, strictly regimented inspection process to verify and validate all of the aircraft's modifications and clearances. The Integrated Test Team (ITT) at NAS Pax River, Edwards AFB, MD, VMX-22 (described below), and the Bell facility at Amarillo, TX, have flown more than 4600 hours in the MV-22.

Since the MV-22 is neither a fixed-wing nor rotary-wing platform, it has a unique designation as a tiltrotor. The aeromechanics, composite structure, maintenance concepts, and concept of employment are inherently unique and best addressed in a squadron solely focused on tiltrotor operational test. Marine Tiltrotor Operational Test and Evaluation Squadron Twenty-Two (VMX-22) stood up in August 2003 to meet these requirements. VMX-22 reports to the Commander, Operational Test and Evaluation Force (COMOPTEVFOR), who





in turn reports test data and results to the Office of the Secretary of Defense, Director Operational Test and Evaluation.

VMX-22 is an independent test organization under the operational control of COMOPTEVFOR and administrative control of the Deputy Commandant for Aviation with the charter to:

- Address future requirements;
- Build an operational tactics guide;
- Develop tactics, techniques, and procedures;
- Sponsor tiltrotor issues and concepts of employment; and,
- Prepare the foundation for the training syllabus of the Tiltrotor Fleet Readiness Squadron.

VMX-22 recently completed an Operational Assessment of the MV-22 in preparation for Operational Evaluation, which is currently scheduled to begin the spring of 2005. All events the squadron had planned for the aircraft during OT-IIF were completed on or ahead of schedule. One of the events completed during the assessment was external lift and transport of the new Lightweight 155 Howitzer of 69 nautical miles, which exceeds the Key Performance Parameter. The squadron provides a solid framework for MV-22 operational testing and lays the groundwork for a long-term “Tiltrotor Center of Excellence.”

## Tactical Aircraft Integration (TacAir)



The Navy and Marine Corps Team's Tactical Aircraft (TacAir) Integration plan will enhance core combat capabilities and result in a more potent, cohesive, and affordable fighting force. This integration is a culmination of a long-term effort to achieve greater combat capability with regard to Naval TacAir and represents a shared commitment to use the resources provided to the Department of the Navy (DON) as judiciously as possible.

Integration efforts have been underway for several years. Since early 2004, five of the Marine Corps' 14 F/A-18 Hornet squadrons have been operating from Navy aircraft carriers as part of their embarked carrier air wings. The first Navy F/A-18 squadron deployed to Marine Corps Air Station Iwakuni, Japan, in support of the Unit Deployment Program in the fall of 2004.

Key points of the TacAir Integration plan include:

- It retains our culture and reinforces our expeditionary ethos.

- It provides a smaller, yet more capable and more affordable force.

- It integrates Marine TacAir on all Navy aircraft carriers.

- It integrates Navy TacAir into the Unit Deployment Program.

- It globally sources all Department of the Navy (DoN) TacAir assets to ensure support to the Marine Air-Ground Task Force.

- It provides increased combat capability in forward areas.

- It is in concert with the enhanced Seabasing concept.

A cornerstone of this plan is DoN funding and maintenance of legacy aircraft at the highest levels of readiness, until the Joint Strike Fighter and F/A-18E/F replace them. This requires an unwavering commitment to a heightened strike-fighter readiness across the DoN. The readiness levels associated with integration will allow the DoN to surge more aircraft than is within our means today.

To confront the challenges posed by the changing conduct of war and rapid evolution of technology, the Navy and Marine Corps will leverage their respective service's



strengths to integrate when and where appropriate. Integration will produce a more effective and efficient naval force with improved warfighting capabilities. TacAir integration, coupled with new technology, service reorganization, and doctrine, will enable Naval Aviation to provide a unique, flexible, sea-based capability that will provide a greater range of options to the theater and Marine Air-Ground Task Force MAGTF commanders. This co-evolution of technology, organizations, and concepts that surrounds TacAir integration and the JSF will truly provide a transformational warfighting capability to land- and sea-based naval forces.

Naval Aviation will be fully integrated

into task-organized Expeditionary Strike Groups and Carrier Strike Groups, enhancing the strategic agility, operational reach, and tactical flexibility of U.S. naval expeditionary forces. Navy and Marine Corps aircraft will operate from sea bases, optimized austere bases ashore, and right-sized expeditionary airfields with a new generation of lethal aircraft, providing naval and joint commanders with capabilities that were unattainable until now.

Integrated Naval TacAir, which will also possess significant low-observable strike capabilities embodied in the Joint Strike Fighter, will be capable of delivering fires across the breadth and depth of the joint battlespace. Greatly improved strike options



for the MAGTF and theater commanders will be realized by fusing information from naval, joint, and national resources. Battlespace awareness will be measurably improved through the integration of networked forces and assets. Marine Corps and Navy forces will be seamlessly networked with pervasive intelligence, surveillance, and reconnaissance assets—including unmanned and autonomous sensors—allowing them to cover the entire battlespace.

Current service doctrines and training have traditionally focused on the employment of air power at the tactical level (close air support) or the strategic level (long-range strike or interdiction). Now, MAGTF, joint force, or theater commanders can leverage

Naval Aviation's distinctive characteristics at the operational level. Organizational and cultural change, coupled with new technology and innovative operating concepts, is fundamentally changing Naval Aviation and achieving exponential increases in its capabilities.

The naval air forces will take advantage of their reach, flexibility, sensors, and weapons to project power from both dispersed and networked sea and land bases through air-delivered fires and maneuver. This scalable and continually transforming force will provide the capabilities and flexibility required by U.S. joint force commanders, and will play a key part in achieving ultimate victory.





# Aviation Combat Element (ACE) Legacy Platform Modernization

The Marine Corps has several significant aviation modernization programs underway to restore and enhance the capabilities of its existing aircraft and systems. These modernization efforts are vital to the services' near- to mid-term combat capabilities.

## CH-46E

The CH-46E Sea Knight performs medium lift combat missions in the execution of the Assault Support function of Marine Aviation. The CH-46E is fulfilling a critical role in Operation Iraqi Freedom. Sustainment, performance improvement, and payload recovery programs are essential to ensure the platform continues to meet Marine Air-Ground Task Force (MAGTF) and joint warfighting requirements over the next 10 years.

The CH-46E Engine Reliability Program (ERIP) is essential in order to maintain the CH-46E as a viable and supportable airframe until it is fully replaced by the MV-22 Osprey. By replacing the T58-GE-16 engine core and accessories, ERIP will arrest the downward trend in engine

health, increase engine reliability, and restore operational power margins, while providing a significant reduction in fleet labor and support costs. ERIP is currently in full rate initial production. It is vital that this program continue at its programmed pace through FY 2008.

The CH-46E will continue to play a vital role in support of the Global War on Terrorism and, therefore, Aircraft Survivability Equipment systems are being upgraded, including the missile warning system, countermeasures dispensing system, and IR missile jamming system. The CH-46E has received additional funding for lightweight armor and a lightweight seat.

## CH-53E

The CH-53E Super Stallion is a three-engine, long-range, heavy-lift helicopter that supports the Assault Support function of Marine Aviation. The current fleet of aircraft will begin to reach the end of its service life during this decade. In addition to the replacement of this aircraft with new platforms, a comprehensive sustainment



program is required to effectively meet MAGTF and joint warfighting requirements over the next 15 years.

Current sustainment initiatives include a T-64 engine reliability improvement program, helicopter night vision system modification, and engine air particle separator system enhancements. These and other sustainment efforts are designed to address engine time on wing concerns, the degradation of wiring, and structural issues. These efforts will enhance aircrew safety and survivability, while lowering operational costs and maintenance man-hours per flight hour.

Operation Iraqi Freedom highlighted aircraft survivability issues that are now being addressed on an accelerated timeline. Improvements include upgrades in the missile warning systems, missile countermeasures, small arms protection, and self-defense weapons.

### **AH-1W and UH-1N**

The AH-1 and UH-1 Upgrade program is essential to ensuring the MAGTF possesses credible rotary-wing attack and utility support platforms for the next 20 years. Known as the H-1 Upgrade, the program remanufactures the current AH-1W Cobra and the UH-1N Huey helicopters. The H-1 Upgrade program is designed to reduce life-cycle costs, significantly improve operational capabilities, and extend the service life of both aircraft. Commonality between aircraft will greatly enhance the maintainability and deployability of the systems, with the capability to support and operate both aircraft within the same squadron structure.



The program replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with a new four-bladed, all-composite rotor system, coupled with a sophisticated fully integrated, state-of-the-art cockpit. In addition to the new main rotor system and cockpit, the H-1 Upgrade will incorporate a new performance-matched transmission, a four-bladed tail rotor and drive system, and upgraded landing gear for both aircraft. The integrated glass cockpit with modern avionics systems will provide a more lethal platform, as well as enhanced joint interoperability through the digital architecture.

Overall, the H-1 Upgrade program brings all previously funded or planned modifications under one umbrella. The program uses components that are 84 percent common between the two aircraft. Through use of the same major components—such as drive train, cockpit, and software—logistics support and strategic lift requirements will be greatly reduced, resulting in more space available on amphibious and Maritime Pre-positioning Force ships. Moreover, these



improvements will make the Marine Corps' attack and utility helicopter capabilities more compatible with the performance demands of all future warfighting concepts.

Operational enhancements include a dramatic increase in range, speed, payload, and lethality of both aircraft, while significantly decreasing their logistic footprint. The UH-1Y will operate at nearly twice the current range with more than double the payload. The AH-1Z will realize similar performance increases with the ability to carry twice the current load of precision-guided munitions.

The H-1 Upgrade program is an economical and comprehensive upgrade of both UH-1N and AH-1W helicopters, which will resolve existing operational safety issues, while significantly enhancing the capability and operational effectiveness of the attack and utility helicopter fleet. A key modernization effort, the H-1 Upgrade will provide a bridge until the introduction of an advanced rotorcraft design. Due to substantial operational demands and aircraft attrition—both resulting from the Global

War On Terrorism—the Marine Corps is pursuing a 'build new' strategy for the UH-1 and examining a 'build new' strategy for the AH-1, in order to preclude significant inventory shortfalls.

### AV-8B

The final remanufactured AV-8B Harrier was delivered in September 2003, making the AV-8B fleet one of the youngest aircraft in service, averaging eight years old. In addition, the Marine Corps' two-seat TAV-8B trainers are undergoing an upgrade program that adds new color displays, night vision goggle-compatible lighting, and a more powerful and reliable Pegasus (408) engine. These improvements are increasing the training capability of the AV-8B fleet replacement squadron, as well as increasing the abilities of our replacement pilots reporting to their fleet squadrons. The enhancements to the Harrier are a critical link for providing continued support to the MAGTF, until the Tactical Air (TacAir) Integration implementation and Joint Strike Fighter (JSF) transition are complete.



The Open Systems Core Avionics Requirement (OSCAR), which updates obsolete software and computer equipment, will enter service in Spring 2005. OSCAR allows the AV-8B to maintain its relevance until the JSF enters Marine Corps service. OSCAR enables the AV-8B to employ the Joint Direct Attack Munition, improving radar and Litening targeting pod capability.

The Litening advanced targeting pod provides the AV-8B with a significant improvement in its lethality and survivability. This third-generation, targeting pod with its infrared marker provides improved target recognition and identification, while the laser designator and laser spot tracker provide precision targeting capability. Some Litening pods have also been equipped with a video downlink, which allows real-time video to be sent to ground-based commanders and forward air controllers. This facilitates time-sensitive targeting and reduces the chance of fratricide and collateral damage.

## F/A-18

The F/A-18A Upgrade (Engineering Change Proposal 583) consists primarily of avionics and hardware upgrades that allow the F/A-18A Hornet to process and use updated versions of F/A-18C software and accessories. A large portion of this modification enhances commonality between the “A” and “C” aircraft, reducing logistics footprint, and pilot and maintenance training requirements, as well as mitigating obsolescence issues. The modified “A” aircraft is compatible with a Lot XVII F/A-18C aircraft—an aircraft eight years younger. This upgrade also enables the



“A” aircraft to employ all current and programmed future weapons.

Seventy-six aircraft are scheduled to receive the upgrade, enabling the upgraded “A” model aircraft to remain in the active inventory until the 2015-plus timeframe. These additional, relevant F/A-18 airframes are instrumental in supporting the Navy-Marine Corps TacAir Integration plan.

The F/A-18D Advanced Tactical Airborne Reconnaissance System (ATARS) provides manned airborne tactical reconnaissance capability to the MAGTF. ATARS incorporates multiple sensor capabilities including electro-optical, infrared, and synthetic aperture radar. ATARS-equipped aircraft carry all sensor capabilities simultaneously, enabling imagery that is selectable by the aircrew in flight. Another significant capability of ATARS is its ability to digitally transmit collected data in near-real time to ground receiving stations. This imagery can be data-linked to various intelligence systems for national exploitation via the Joint Service Imagery Processing System-Tactical Exploitation Group (JSIPS-TEG). Eighteen ATARS sensor suites are now



operational in all six Marine Corps F/A-18D squadrons. Digital solid-state recording systems and data link capability are still being developed and fielded.

The Litening advanced targeting pod provides the F/A-18 with a significant improvement in its lethality and survivability. This third-generation, forward-looking infrared set, dual field-of-view TV seeker, and infrared marker provides improved target recognition and identification, while the laser designator and laser spot tracker provide precision targeting capability. Some Litening pods have also been equipped with a video downlink, which allows real-time video to be sent to ground-based commanders and forward air controllers. This facilitates time-sensitive targeting and reduces the chance of fratricide and collateral damage.

Litening pod capabilities meet or exceed all USMC requirements.

Based upon Litening pod's proven combat value during recent operations, the Marine Corps has modified numerous expeditionary F/A-18 aircraft to carry the Litening pod. The Litening pod is a proven capability that better enables Marine Aviation to support the MAGTF and Joint Force Commanders.

### **KC-130**

The KC-130 legacy platform modernization and upgrade plan consists primarily of an Avionics Modernization Program (AMP) for the Reserve component and Aircraft Survivability Equipment (ASE) upgrades for both the active and Reserve component inventories. AMP is a joint USAF, USN, and USMC program that provides upgrade of 28 KC-130T USMC



reserve component aircraft. AMP facilitates solutions to avionics obsolescence issues. It includes upgraded avionics suites to allow compliance with international communications-navigation and surveillance/air traffic management mandates, electrical systems improvements, full night vision lighting capability, and upgraded defensive electronic countermeasure (DECM) provisions, as well as configuration, support, and training commonality improvements across the entire Department of Defense C-130 fleet. The program is scheduled for first delivery in 2008 and completion by 2016.

ASE and DECM modernization of 12 active duty component aircraft (KC-130F and R series), all identified as "core" aircraft, and 8 reserve component aircraft (KC-130T series) is currently underway. The upgraded DECM suite includes the APR-39A(V)2 upgraded radar warning system, the AAR-47(V)2 upgraded missile warning system, the ALQ-157 infrared countermeasures system, and the ALE-47 countermeasures dispensing system. "Core" KC-130F/R series aircraft are scheduled to

remain in the inventory at a decreasing rate until the KC-130J is fully fielded throughout the entire active component in 2013. A future ASE upgrade to the entire KC-130T fleet includes the AAR-47(V)2, ALE-47, and ALR-69, and is scheduled for completion in conjunction with the KC-130T AMP.

## **EA-6B**

EA-6B upgrades maintain Marine Prowlers as an essential combat-proven element of the MAGTF and the joint force. The cornerstone of the modification and upgrade plan is the Improved Capabilities III (ICAP III) weapon system for both Marine and Navy EA-6B squadrons. The core of ICAP III is the ALQ-218 digital receiver system. This is the first receiver upgrade to the EA-6B since its fleet introduction more than 30 years ago. The improved receivers will enable more precise jamming, while also improving aircrew



situational awareness and reducing life cycle costs.

ICAP III is scheduled for initial operational capability in FY 2005. The EA-6B's ongoing re-winging and upgrades will also be critical to maintaining the airframe's viability through 2015.



# Joint Strike Fighter (JSF) Transition Plan

Designated the F-35, the Joint Strike Fighter (JSF) will be the next generation strike-fighter for the Marine Corps, Air Force, and Navy. The JSF family of aircraft includes short takeoff and vertical landing (STOVL), conventional takeoff and landing (CTOL), and aircraft carrier-capable (CV) variants. Commonality between the variants helps reduce both development and lifecycle costs, and will result in the greatest “bang for the buck” when compared to developing three separate aircraft. The JSF will replace the AV-8B and F/A-18A/C/D in the Marine Corps, the F-16C and A-10 in the Air Force, and the F/A-18C and F-14A/D in the Navy.

The F-35 will incorporate advanced mission systems, including the Active Electronically Scanned Array (AESA) radar, Electro-Optical Targeting System (EOTS), and Distributed Aperture System (DAS). The AESA, EOTS, and DAS will be fused into a pilot’s helmet-mounted display system, negating the need for a traditional heads-up display in the cockpit.

The Marine Corps will operate the STOVL variant that will be capable of operating from large-deck amphibious ships, main operating bases, and austere sites ashore. The STOVL F-35 will provide the Marine Corps with a low-observable,



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state-of-the-art, high performance, multi-role offensive aircraft. The United Kingdom's Royal Air Force and Royal Navy will also use the STOVL variant.

The Corps will employ the F-35 to execute five of the six functions that Marine Corps aviation performs. This remarkable breadth of employment will allow the Marine Corps to decrease its TacAir inventory, while increasing lethality, survivability, and supportability when compared to legacy aircraft. The planned Marine Aviation procurement requirement for STOVL JSF is 420 aircraft. This quantity reflects a reduction of 189 aircraft from the program of record and includes deactivations, reduced Primary Aircraft Authorized (PAA), and reduced overhead percentages, as a result of the Department of the Navy's TacAir Integration Plan.

The current JSF acquisition strategy for the United States Marine Corps continues to reflect our vision of an "all-STOVL" force. In accordance with a Memorandum of Understanding of August 2002 between

the Secretary of the Navy, Commandant of the Marine Corps, and the Chief of Naval Operations, the Marine Corps' strategy will be maintained until a fair and equitable analysis of the CV and STOVL variants can be conducted during flight-testing scheduled for the 2006-2008-time period.

Once the F-35 begins entering service, the Marine Corps will begin retirement of AV-8Bs and F/A-18 Hornets. All legacy strike TacAir platforms should be retired by 2023. As the TacAir Integration plan progresses, the Corps will explore the feasibility of incorporating an Airborne Electronic Attack capability into the baseline F-35 to address the eventual retirement of EA-6B Prowlers.

The STOVL JSF is absolutely critical to the success of the Marine Corps, as it will solve the significant problems of age and attrition currently facing Marine TacAir. The combination of stealth, basing flexibility, and superior performance will revolutionize air warfare and naval aviation in the 21st century.



# Marine Aviation Logistics Modernization

For Marine Aviation to be effective in fighting future conflicts, logistics support must continue to be the viable force multiplier that Marine warfighters have relied upon through the years and through many conflicts. Logistics processes must evolve and advance if Marines are to expect the same—or better—support in the future. Failing to address the need for logistical change will prolong vulnerabilities, such as conspicuous and fixed targets, reduce the ability to rapidly respond to logistics needs, and result in higher-than-necessary costs in finances, resources, and effort.

Marine Aviation is reshaping its logistics elements to enable the highly effective and agile combat support needed for future conflicts, while concurrently meeting today's readiness needs. The key pillars of this modernization effort are: Naval Aviation Enterprise AIRSpeed, the Marine Aviation Logistics Support Program II (MALSP II), and systems modernization.

**AIRSpeed** The change for aviation logistics is driven by the Naval Aviation business integration strategy of AIRSpeed. AIRSpeed is the enterprise-wide change to the Naval Aviation logistics system, which revolutionizes the stagnant legacy business rules of retail and wholesale supply, and the maintenance processes at squadron level, intermediate-level (ships and air stations), and industrial level (depot and commercial manufacturers). AIRSpeed is the architecture that integrates and aligns the flow and incentives of local actions into better global performance. The AIRSpeed architecture blends proven best business practices of the commercial sector, including the Theory of Constraints, Lean Manufacturing, and Six Sigma.

**Marine Aviation Logistics Support Program II (MALSP II)** For Marine Aviation, AIRSpeed offers the opportunity to dramatically improve expeditionary logistics for the warfighter. Specifically, the AIRSpeed philosophy and principles will be the basis for improving the time-tested doctrine of the Marine Aviation Logistics Support Program (MALSP). Applying AIRSpeed, MALSP-II becomes the comprehensive aviation logistics program that postures Marine Aviation of tomorrow by enhancing the future Aviation Combat Element's (ACE's) operational freedom of maneuver with a more reliable and effective logistics system, which is adaptive in form, proactive in engagement, and lighter overall. MALSP-II increases Marine Aviation's ability to rapidly deploy, employ, sustain, and redeploy in austere regions. In addition, MALSP-II provides an improved solution set for addressing uncertainty, variability, and unpredictability.

**Systems Modernization** AIRSpeed and MALSP II provide the operational framework that enables Marine Aviation to take full and rapid advantage of emerging technologies and systems. Autonomic logistics, improved information technologies, advanced transportation solutions, and enhanced industry partnerships on new platform acquisitions will all merge within the AIRSpeed/MALSP II approach.

## Unmanned Aerial Vehicles

The Marine Corps has employed Unmanned Aerial Vehicles (UAVs) since the mid-1980s to provide near-real-time reconnaissance, surveillance, and intelligence to tactical commanders. Currently, Pioneer is the Marine Corps' only tactical UAV. The Vertical Unmanned Aerial Vehicle (VUAV) is the Marine Corps' new start program to replace the Pioneer. VUAV will serve as a transformational UAV that fulfills today's requirements and meets the increasing mission necessities of tomorrow.

The Marine Corps introduced Pioneer in 1986 as an interim UAV system that would be replaced within 10 years. Since then, it has served with distinction from Operation Desert Storm through its current duties in Operation Iraqi Freedom (OIF). In OIF, Pioneers have provided the intelligence necessary to make the difference between success and failure. Marine Unmanned Aerial Vehicle Squadrons (VMUs) have increased operational tempo, flying at more than ten times the peacetime rate in support of troops on the ground in Iraq and Afghanistan. Using Pioneer's electro-optical (EO) and infrared (IR) cameras, ground units have visual access to their routes and areas of responsibility before the first Marine crosses the line of departure. Pioneer also provides continued access during the remainder of the mission.

Pioneer has accomplished its mission through a constructive sustainment program. Replacing engines, sensors, and communications systems are some of the present efforts taken to address Pioneer's 1980s technology. Marines in the field work hard to maintain the system's reliability and ability to meet their warfighting needs. Additionally, the Marine Corps is

addressing Pioneer's logistics footprint to keep the system operational until its planned retirement date of 2009.

VUAV is the Marine Corps' definitive vision for a transformational UAV that will provide responsive, real-time reconnaissance, surveillance, targeting, and weapons employment capabilities to Marine Air-Ground Task Force (MAGTF) or Joint Task Force (JTF) Commanders, during Expeditionary Maneuver Warfare (EMW). In order to meet many of the VUAV requirements today and provide a timely replacement for Pioneer, the Marine Corps is considering the Eagle Eye UAV.

Eagle Eye is an off-the-shelf, highly adaptable UAV that builds upon the U.S. Coast Guard's existing program. Employing tilt-rotor technology, Eagle Eye takes off and lands like a helicopter, using an automatic takeoff and landing system designed for expeditionary shipboard and land-based operations. Once airborne, Eagle Eye utilizes an advanced control system to transition to conventional flight, converting Eagle Eye into a high-speed aircraft that can carry a 300-pound modular







mission payload at 20,000 feet. Eagle Eye's modular payload can carry EO and IR sensors, and radar, and will eventually include a radio-relay capability and laser or infrared target pointers. Flying in excess of 200 knots, Eagle Eye is responsive, survivable, and has the operational reach in range and time-on-station necessary to support Marines in any clime and place.

Organic Marine Corps aviation assets can transport Eagle Eye's small logistics footprint. In the Global War on Terrorism (GWOT), systems must perform in dirty

and dangerous environments. Eagle Eye is designed to be reliable in austere operating environments, and its high level of automation reduces workloads and initial training requirements to manage the system.

Eagle Eye provides a logical, timely, capable, off-the-shelf solution that meets Marine Corps mission requirements for today, while providing a system and employment concept in support of EMW and Sea Power 21 for the future.

The Marine Corps is considering the purchase of the same version of Eagle Eye as the Coast Guard. Eagle Eye would replace Pioneer (in time for its retirement) with a UAV that has a powerful EO/IR sensor package and outstanding performance. The first vehicles will test operational concepts. VUAV represents a two-generation leap in Marine Corps UAV capability. Organized to allow this mission-enabling system to deploy in detachments, VUAVs will provide maximum support throughout the breadth and depth of the battlefield.

In Iraq, battles are won on intelligence first, bullets second. VUAV will champion both of those missions.

## VXX Presidential Helicopter Replacement Aircraft

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Marine Helicopter Squadron One (HMX-1) is chartered to provide safe and timely transportation for the President and Vice President of the United States, foreign heads of state, and others as directed by the White House Military Office. When the President is onboard Marine One, this aircraft is the Commander-in-Chief's primary command-and-control platform and must provide him with the flexibility and capabilities necessary to execute the duties of his office. The global nature of these commitments requires HMX-1 aircraft to deploy worldwide and operate in varying environmental and climatic conditions without mission degradation.

Currently, two types of aircraft are utilized by HMX-1 for the Presidential support mission: the VH-3D and VH-60N. Numerous modifications and improvements have been incorporated in both aircraft over the past several years to accommodate emerging technologies and additional White House requirements. Although they are robust platforms that enjoy some of

the best safety records in the fleet, the VH-3D and VH-60N are aging designs with a finite ability to incorporate new technology. Given the dramatically changed nature of the threat environment since September 11, 2001, the need for improved communications and survival capabilities has grown beyond the VH fleet's structural and performance growth ability.

The VH-3D and VH-60N replacement, currently referred to as VXX, will be a conventional helicopter. Its capabilities, which will be delivered in two increments, are split into four functional areas: Aircraft Operations, Communications, Survivability, and Presidential Accommodations. VXX will have increased capabilities in these areas, while retaining core capabilities carried forward from the VH-3D and VH-60N. The VXX will meet current threat requirements, as well as other yet unseen challenges, to provide the President of the United States with robust and efficient transportation.



## Distributed Common Ground/Surface System-Marine Corps (DCGS-MC)

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The Distributed Common Ground/Surface System-Marine Corps (DCGS-MC) is a subset of the Marine Air-Ground Intelligence System (MAGIS) network. MAGIS provides the capability to collect, process, analyze, fuse, and disseminate information derived from all Marine organic intelligence disciplines—including Imagery Intelligence, Signals Intelligence (SIGINT), Measurement and Signatures Intelligence, and Human Source Intelligence as well as national and theater systems. DCGS-MC meets specific Department of Defense requirements and connects intelligence professionals to multi-discipline joint, national, and organic data sources, analytical assessments, and collection assets.

MAGIS is specifically designed to support EMW by providing Marine commanders with the all-source, fused intelligence necessary to make informed decisions rapidly across the dynamic, chaotic, and complex battlespace. It is interoperable with joint and national intelligence networks, and is capable of disseminating tailored intelligence to tactical units.

The current DCGS-MC includes the following elements:

- Intelligence Analysis System, which is the all-source analysis and fusion hub of MAGIS;

- Technical Control and Analysis Center, which is the SIGINT correlation, analysis, and tasking hub;

- Tactical Exploitation Group (TEG), which is the IMINT processing and analysis hub; and,

- Joint Surveillance and Target Attack Radar System (JSTARS) Common Ground Station, which receives, displays, and tasks Moving Target Indicator and JSTARS Synthetic Aperture Radar imagery.

To meet the increased interoperability and data posting/sharing requirements levied by the Office of the Secretary of Defense (OSD), as well as the timely and accurate intelligence requirements demanded by Expeditionary Maneuver Warfare, DCGS-MC must transform from a partially networked family of systems to an enterprise encompassing all of Marine Corps Intelligence Surveillance and Reconnaissance (ISR) assets and be fully interoperable with other Services, Agencies and COComs. This enterprise solution will be called the Marine Corps ISR Enterprise (MCISR-E).

MCISR-E is an enterprise that encompasses the entire Intelligence Cycle in order to better assist the USMC operational planning and decision-making processes. It evolves the intelligence cycle's steps from sequential to parallel to simultaneous and includes everything in the cycle from the sensors through the initial posting of the collected data, processing, exploitation, the storing of resultant intelligence products in data stores at the Marine Expeditionary Force and at Marine Corps Intelligence Activity in Quantico, and most importantly the use of intelligence by commanders and staffs. It will leverage the collaboration capabilities offered by current technology enabling reachback to garrison locations for substantial intelligence analysis and production support and will have even better interoperability and access to national, theater and other Service ISR data. These reachback and interoperability capabilities will enable us to continue to reduce the intelligence footprint forward deployed while dedicating 'worldwide intelligence support' to the MAGTF Commander.

## Enterprise-Land Mobile Radio (E-LMR)

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The Marine Corps' Enterprise-Land Mobile Radio (E-LMR) network will provide secure, unimpeded, immediate, and interoperable wireless communications for public safety personnel, who are tasked with saving lives and safeguarding property, in accordance with the Homeland Defense and Anti-Terrorism/Force-Protection (AT/FP) initiatives. Lessons learned from September 11, 2001 have highlighted the requirement for interoperable communications in an E-LMR network that avoids system overload and preserves spectrum availability for Marine Corps installation first responders.

The Marine Corps has a requirement for enhanced AT/FP communications in the supporting establishment within its bases, posts, and stations (BPS). Military police, installation fire departments, and emergency medical services (collectively referred to as first responders) cannot

adequately perform their crucial duties aboard the BPS without reliable, interoperable Land Mobile Radio (LMR) networks. LMR refers generically to commercial hand-held radios and associated network infrastructure that are used extensively by Marine Corps and civilian first responders. LMR networks are also used by range control officers, installation game wardens, flight line personnel, and other mission-critical personnel.

The goal of this initiative is to enhance Marine Corps AT/FP capabilities and provide LMR communications. This will facilitate mutual aid operations with local communities. The Marine Corps is committed to the protection of our Marines, families, property, and off-base neighbors. E-LMR will provide Marine Corps first responders with interoperable, reliable communications to ensure their critical-mission success.



## Joint Tactical Radio System (JTRS)

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The Joint Tactical Radio System (JTRS) is the Defense Department's transformational radio program. JTRS is a part of the Transformational Communication Architecture, which is a component of the larger Global Information Grid (GIG). This future architecture is Department of Defense's vision for communications in a net-centric environment. JTRS supports joint operations by providing the capability to transmit and receive a variety of waveforms and networking protocols used within the radio-frequency spectrum. JTRS ensures joint operational capabilities by providing voice, video, and data services to military commanders at all echelons of the force.

The operational concepts of Joint Vision 2020, coupled with the Marine Corps operating concept of Expeditionary Maneuver Warfare, place a premium on information superiority as an enabler. To that end, JTRS will provide the warfighters with vertical and horizontal network connectivity across the radio-frequency spectrum, permitting them to achieve the information dominance that is critical to future warfare requirements.

JTRS is a family of affordable, high capacity, software-defined tactical radios that provide wireless, mobile, line-of-sight and beyond-line-of-sight C4I capabilities to our warfighters. The JTRS family of radios will be interoperable with legacy communication systems and capable of growth to accommodate new requirements and technologies. Relying on open-system standards, it will also be compliant with the Joint Technical Architecture and will

be employed in ground mobile, airborne and maritime domains. Additionally, JTRS will feature a Wideband Networking Waveform that will provide reliable data transmission throughout the Marine Air-Ground Task Force.

JTRS capabilities are segmented into form-fit-function domains. JTRS Cluster 1, which is being developed by the Army, includes requirements for Marine and Army ground vehicles, Air Force Tactical Air Control Parties, and Army rotary-wing aviation. JTRS Cluster 2 is a limited handheld radio spiral development effort led by USSOCOM. The JTRS Airborne and Maritime/Fixed Station (AMF) program resulted from the merger of Cluster 3 (Maritime/Fixed Station) and Cluster 4 (Airborne) requirements. The JTRS AMF program will acquire JTR sets for airborne, maritime, and fixed station platforms for all services. Cluster 5 will oversee acquisition development and production of JTRS handheld and man-portable units, and forms suitable for embedment into platforms requiring a Small Form Fit (SFF) radio for the 2Mhz - 2.5Ghz frequency range. Efforts are currently underway to develop future capabilities that utilize above 2Ghz waveforms to support future satellite communications requirements.

JTRS is the wireless "foundation" supporting the GIG architecture, which is essential for network-centric warfighting. JTRS will help bring the Marine Corps' core competencies of readiness, deployability, flexibility, and innovation to joint, interagency, and coalition operations.

## Expeditionary Command and Control Suite (ECCS)

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The Expeditionary Maneuver Warfare (EMW) concept calls for Marine forces to enable the deployment of joint and multi-national operations during the initial stages of a contingency. The Expeditionary Command and Control Suite (ECCS) will provide connectivity to theatre and national assets, and facilitate the timely and efficient dissemination of information throughout the Marine Air-Ground Task Force (MAGTF).

ECCS is a scalable, deployable, data/voice satellite communications system capable of deploying on commercial and military air- and land-based platforms with a minimal physical and logistical footprint. It is designed to support up to 20 staff members and operate on the move, depending on the deployed system configuration. It consists of two primary parts. The Base Station, which includes the equipment necessary to terminate multiple spokes, is permanently installed at garrison Marine Expeditionary Forces (MEF) Headquarters (HQs). The second is the Deployable System, consisting of a scalable communications technology, which will terminate at MEF HQs and receive services through a reach-back connection.

ECCS is designed to enhance the command and control capability of the MAGTF commander. ECCS will provide secure e-mail, web access, voice communication, video teleconferencing, C2PC/COP and collaborative planning, using the Defense Collaboration Tool Suite (DCTS) standard. ECCS will enable commanders to properly tailor their initial entry force to respond to a wide range of crises, from forcible entry to humanitarian assistance.

Marine Forces equipped with ECCS capabilities will be able to rapidly deploy a scalable communications system, using a wide range of transportation options (C-130, C-17, C-141, C-9, CH-53, and V-22). The capability allows MAGTF commanders connectivity into the Global Information Grid from remote and austere locations worldwide. In addition, this capability improves on-the-move situational awareness and enables the commander to conduct collaborative planning, while en route to contingency operations. The ECCS capability will address the on-the-move, command-and-control function required by the Marine Corps.



## Navy-Marine Corps Intranet (NMCI)

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The Navy-Marine Corps Intranet (NMCI) is one of the central tenants of Marine Corps network-centric operations. NMCI is being implemented on an enterprise-wide scale through the partnership of the Department of the Navy, the Department of Defense, and related defense industries.

NMCI is designed to provide an integrated, shore-based network for data, voice, and video services. The benefits inherent in NMCI include technology updates, interoperable systems, integration

of network resources and services, and improved manpower efficiencies. Facilitated by close coordination with corporate technology leaders, NMCI provides contractual support for a vast array of services, including desktop and laptop computers, servers, network infrastructure, applications, and help desk services. The Marine Corps plans to obligate \$343M in NMCI orders during FY-05, bringing the total number of seats under NMCI to approximately 89,000. The Marine Corps Network Operations and Security Command integrates NMCI services into the Marine Corps Enterprise Network, ensuring all compatibility and security standards are met.

NMCI is designed to improve the ability of the Marine Corps to undertake warfighting missions. By providing a full range of enterprise data, voice, and video services, NMCI is poised to become the shore-based network the Marine Corps employs for garrison e-business operations in support of expeditionary forces.



## Logistics Modernization



Described as “the most important institutional warfighting imperative,” the importance of logistics modernization was clearly articulated by the Commandant of the Marine Corps (CMC) in April 2004: “I ask commanders at all levels to be engaged in this important Marine Air-Ground Task Force (MAGTF) Logistics Modernization Effort that is critically needed today and, without which, we will not be able to support Expeditionary Maneuver Warfare (EMW) and Seabasing in 2015.”

Why is such commanding, overarching

importance attached to logistics modernization? Because logistics modernization is a *huge* enterprise integration effort, which is simultaneously addressing technologies, processes, and people—through adjustments to doctrine, training, and organizations—in a Marine Corps that has seemingly under valued logistics as a MAGTF warfighting imperative, nor invested in it accordingly. The Marine Corps is changing this mindset with the most comprehensive, end-to-end approach ever taken to improve MAGTF logistics, and it’s doing so with a laser focus at the tactical level.

As an overarching concept, logistics modernization has many components. On the technology side, the Global Combat Support System-Marine Corps (GCSS-MC) is intended to provide modern, deployable information technology (IT) tools for supported and supporting units. GCSS-MC will be based upon a logistics operational architecture that better integrates current inventory management, logistics, distribution, and financial processes. GCSS-MC is an Acquisition Category I program (one of only two for the Marine Corps, the other being the Expeditionary Fighting Vehicle) that has already cleared Milestone A.

On the process side, the Marine Corps is transitioning from five to three echelons of maintenance, and it is realigning inventory management and distribution functions to provide more effective MAGTF logistics support.

On the people side, an education advisory group is working with the Training and Education Command to modify officer and enlisted logistics education and training, which are consistent with GCSS-MC field-





ing and the logistics architecture. A logistics Command and Control (C2) requirements group continues to assess logistics C2 requirements, the fielded Common Logistics Command and Control System (CLC2S), and other complementary work being done in C2, including the common aviation C2 system (CAC2S). The recently completed logistics operational architecture has been transitioned to the Marine Corps Combat Development Command's (MCCDC's) Expeditionary Force Development Center (EFDC) for Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) assessment and implementation. Furthermore, a full-time transition task force (TTF) as been assigned to assist the EFDC in addressing all facets of logistics modernization in a disciplined, methodical approach.

In addition to the TTF, another full-time task force of various logistics subject matter experts (SME) has been assigned to the GCSS-MC program manager to assist in software configuration efforts, once a final software selection has been made and a separately contracted system integrator

identified. The Field Supply and Maintenance Analysis Offices (FSMAO) have been redesignated as Logistics Chain Assessment Teams (LCATs), and are receiving intense training to enable them to assist the Marine Expeditionary Forces (MEFs) in logistics modernization and GCSS-MC implementation.

Other logistics modernization initiatives currently underway include the increased use of Automatic Identification Technology (AIT) with an emphasis on Radio Frequency Identification Tags (RFID). AIT, which includes barcodes, RFID, optical memory cards and contact memory buttons, has been in use within commercial industry and DoD for several years. These technologies act as enablers for a variety of logistics automated information systems to streamline what were previously cumbersome logistics processes requiring significant manual effort. Most recently, RFID has been aggressively pursued for implementation throughout DoD to enhance the spectrum of in-transit and total asset visibility (ITV and TAV) of resources throughout the logistics chain





and provide valuable decision-making information to the MAGTF commander in support of the Combatant Commanders. Continued efforts will be made to automate and streamline the capture, transmission and use of critical logistics information through the use of AIT.

While GCSS-MC is often considered the key enabler for logistics modernization, the key enabler for GCSS-MC is really the expeditionary force development system (EFDS). GCSS-MC will provide a highly effective, web-based/enabled, collaborative logistics system applicable from the tactical to strategic levels, which will bring the currently stove-piped functions of inventory management, maintenance, transportation, and logistics C2 into one common operational picture. There are significant ramifications that will go well beyond this new logistics IT solution, most of which are not yet fully known. However, new processes and procedures for ordering inventory, maintaining equipment, transporting cargo, managing information, and ensuring all of it feeds into a logistics common-operating picture dictate that many changes will be necessary. These changes to doctrine, training and edu-

cation, organizations, and personnel/skill sets comprise the DOTMLPF pillars that are built into the change-management functions of the EFDS.

Through the EFDS, a TTF has been formed and is being specifically charged to vet these logistics modernization initiatives:

- Implementation of the logistics operational architecture;
- Realignment of maintenance from five to three echelons;
- Realignment/integration of inventory management and distribution functions to best support the MAGTF;
- Identification of required communications/bandwidth to support GCSS-MC;
- Determination of supply battalion processes/organization using the National Inventory Management Strategy;
- Determination of maintenance battalion processes/organization using the three maintenance level constructs and be consistent with International Standards Organization 9000; and,
- Establishment of force service support group naming conventions.



The TTF will analyze a “family tree” of Universal Needs Statements that are being developed for logistics modernization to determine which support the aforementioned priorities vs. which priorities are better served by policy changes. The end result will be for the TTF to set the necessary conditions to enable initial fielding of GCSS-MC in 2006. This will entail the TTF working with the EFDC to determine the best courses of action for implementing logistics modernization priorities and working with MCCDC on a solution planning directive

that contains detailed tasks addressing the affected DOTMLPF pillars.



## Blount Island Procurement

The Marine Corps completed the acquisition of the Blount Island facility in Jacksonville, FL, in 2004. Blount Island Command is now responsible for the stewardship of the land, buildings, and environment. As such, facility management processes for base operating support and services, capital improvements, facilities sustainment and restoration, and anti-terrorism force protection are being put in place to parallel those used at other Marine Corps' installations.

In addition, an encroachment mitigation control plan will be developed to monitor and contain internal and external development threats to Blount Island's long-term mission capability. All proposed land use will be consistent with the Maritime Prepositioning Force (MPF) mission, as amplified in the integrated Blount Island Business Plan and 2004 Master Plan. Joint operations and exercises will be encouraged, and priority consideration will be given to expansion opportunities for military and Federal use. On a case-by-case basis, potential short-term leasing may also be considered in conjunction with MPF and Federal uses.



Our goal is to continue to sustain MPF operations and also expand the strategic value of the Blount Island Command, as it continues to play a vital role in our national defense.



# Capabilities of the Fifth Element

Marine Corps bases and stations are the Fifth Element of the Marine Air-Ground Task Force MAGTF because of their close link to the operating forces. Marine Corps installations are the foundation of combat readiness where training, the work environment, and quality-of-life services and programs come together. Everything we do aboard our installations directly supports warfighters and the essential elements of our unique Marine culture. Our naval expeditionary character, MAGTF primacy, and our warrior ethos, are all affected by the way we organize and manage our installations.

Marine Corps installations provide a high-quality training environment and are recognized as directly supporting the “Total Force in Readiness.” Those installations serve a vital role in training the force, launching and recovering the force, and providing “reach-back” support to our deployed forces. An excellent example of this includes the capabilities within our Regional Contracting Offices that provide MAGTF commanders various goods and services in both the garrison and deployed environment alike.



Marine Corps installations help to instill and maintain Marine Corps values, and provide a range of services to our Marines and their families. In the latter area, installations are using public/private partnerships, where feasible, to provide quality family housing. We are also making a significant investment to provide quality housing for single personnel. In addition, Marine Corps installations host commissaries, exchanges, medical facilities, schools, recreation and fitness centers, and all other manners of community services.

Marine Corps installations are located to support maximum integration of MAGTF elements, are grouped around the Marine Expeditionary Force MEF, and are centered on our major ground bases, training areas and maneuver lands. Additionally, we have located our installations near airports and seaports of embarkation.

The ability to train as a MAGTF is a fundamental requirement of Marine Corps readiness –and is one of the primary roles of our installations. We must continue to assure unimpeded access to all ranges, airspace, and training areas. We maximize training capability by emphasizing the need to create new training areas on our installations, through the systematic land-use changes that are proposed via long-term base master plans, land acquisition, and use of real-time scheduling through enhanced information systems.

The role of Marine Corps installations is much the same as it has always been, commanded by Marines for the use of Marines and their families. However, installations are managed differently today than in the past. The Marine Corps has invested in systems and training that support a





business focus, yet still recognizes that mission accomplishment may lead to decisions that are not focused on the bottom line. In non-core competency areas at our U.S. bases, the Marine Corps makes decisions to retain or divest functions based on best business practices.

In recent years, Marine Corps installations have assumed functions previously under the control of the operating forces, which were not core warfighting competencies. Disbursing is a function recently modeled for that effort. The Marine Corps is considering further shifts in the areas of administration, equipment issue, supply, personal effects handling and preservation,

and packing and packaging. Such shifts improve our operating forces, since warfighting commanders and staffs spend less time instructing, maintaining, and inspecting non-warfighting functions.

To continue supporting the Marine Corps as it evolves, the Fifth Element has developed a document titled “Installations 2020.” It provides the vision that will ensure Marine Corps installations evolve and transition in step with the force. This vision encourages innovation in developing and operating our installations, which would allow balanced application of resources to best support the combat-ready Marine.



## Garrison Mobile Equipment (GME)-Alternative Fueled Vehicle

To meet the key objectives of Executive Order (EO) 13149 and the Energy Policy Act (EPA) of 1992, the Marine Corps developed a strategy for Alternative Fueled Vehicles (AFVs), which operate on fuels not made exclusively with petroleum. For example, there are vehicles dedicated to using only Compressed Natural Gas (CNG), vehicles that use CNG or gasoline/bi-fuel (CNG2), and flex-fuel E-85 vehicles that use E-85 (85 percent ethanol, 15 percent gasoline).

Of the 8,600-plus light-duty vehicles in the Marine Corps' Garrison Mobile Equipment (GME) fleet, more than 1,900 are AFVs. AFVs have an "incremental cost" structure, where the vehicle can be built in the alternative-fuel version for an additional cost. Depending on the type of vehicle, incremental costs can range from \$1,200 to \$30,000. The Marine Corps spends more than \$1 million annually on incremental costs. EPA of 1992 requires that 75 percent of all federal fleet replacement of light duty vehicles (in the metropolitan statistical covered areas) be AFVs. Additionally, under EO 13149, all federal fleets are required to reduce their petroleum fuel consumption by 20 percent by 2005, using 1999 consumption levels as a baseline.

The Marine Corps is very committed to AFVs and the fuels that power them.

It exceeded its EPA Federal Fleet Requirements in 2002 and 2003 by a compliance of 184 percent and 102 percent, respectively. The Marine Corps also exceeded the requirements of EO 13149 three years ahead of the required 2005 deadline. The significant accomplishments achieved in the AFV program were key to the Marine Corps, as well as the Commandant's Deputy Installation & Logistics being named by the Department of Energy as one of the 2003 annual Federal Energy and Water Management Leadership Award recipients. These awards recognize individuals and organizations for significant contributions to the efficient use of energy and water in the federal government.

As a forward-thinking Force in Readiness, the Marine Corps will see the introduction of hybrid and fuel-cell vehicles sometime in the future. While the hybrid vehicles use a combination of electric motors and gasoline engines to achieve efficient operation, fuel-cell vehicles use hydrogen to create electricity, but there is no combustion, so the byproduct of this process is pure water. The electricity that is created drives the electric motor that, in turn, drives the vehicle. ■

# WARFIGHTING CONCEPTS, EMERGING & ENABLING CAPABILITIES

## Enabling Capabilities

### Part 3





## Mine Countermeasures

A family of Navy and Marine Corps Mine Countermeasures (MCM) systems is being developed and fielded to allow joint sea-based forces to conduct expeditionary operations at a time and place of our choosing, to include terrain defended by anti-access systems such as mines and obstacles. Tactics, techniques, procedures, and material solutions are being developed to support seamless naval expeditionary operations throughout the littoral and beyond.

### From the Stern Gate Through the Beach...

Sea-based forces first require an effective mine warfare capability to open and maintain sea lines of communication, and to operate within the littoral battle space. The ability to operate in areas defended by enemy mines and obstacles requires a family of capabilities, which includes detection, location, neutralization, marking, and data dissemination. This family of capabilities will allow commanders to detect and avoid mines and obstacles when possible, and breach when necessary.

In conducting Operational Maneuver From The Sea the Marine Corps relies upon the Navy to maneuver its expeditionary forces to the beach, allowing the deployment and prosecution of operations ashore. Some forces, equipment, and supplies will have to cross the beach regardless of our future vertical-lift capabilities. In specific areas of national strategic interest, the assault force faces challenges in detection and avoidance of littoral waters and landing beaches fouled by mines and obstacles. In these areas of present and future interest, suitable landing beaches are



limited—and our potential adversaries know precisely where they are.

The Navy's triad of deep-water MCM capabilities reside in surface mine countermeasure ships, airborne mine countermeasure helicopter squadrons, and underwater mine countermeasure teams consisting of Explosive Ordnance Disposal (EOD) detachments and Marine Mammal Systems. The MCM triad stands ready to conduct large-area or long-endurance MCM operations from deep water to the 40-foot depth contour.

The Navy is engaged in an effort to augment the triad with MCM systems placed onboard the ships of Carrier and Expeditionary Strike Groups, as well as supplementing Littoral Combat Ships with MCM modules. These are designed to provide a self-contained, "organic" capability to detect, avoid, and/or neutralize mines within an operationally acceptable timeline and with acceptable levels of operational risk. This next generation of systems includes the Remote Mine-Hunting System and the Long-Term Mine Reconnaissance System, among others.

The physics of ship-draft requirements, sensor and system operating limits, diver physiology, mine characteristics, and an extremely dynamic environment—combined with the requirement for covert operations and many other factors—limit effectiveness of deep water systems for Very Shallow Water, which is between 10 and 40 feet deep, the Surf Zone (SZ), from 10 feet deep to the beach, and Beach Zone (BZ) operations.

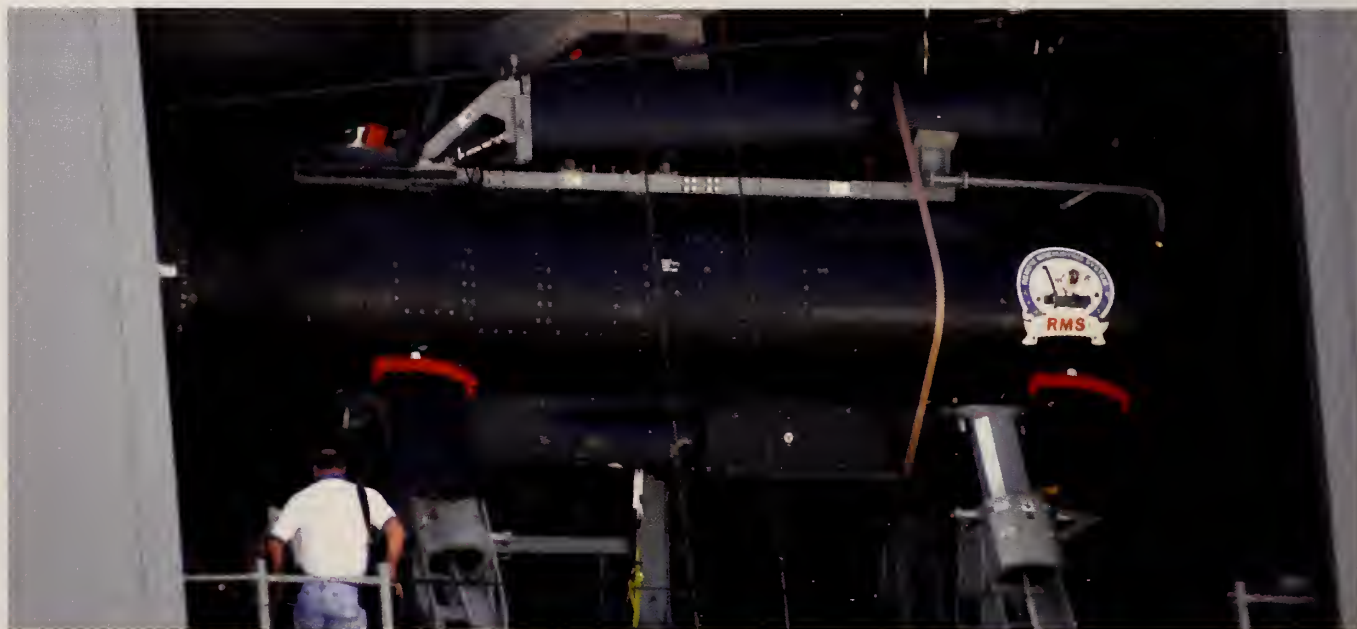
In response, the Navy has fielded a specialized family of capabilities to contend with mines and obstacles in these technologically challenging environments. Navy Special Clearance Team(NSCT)-1—which consists of a 180-man unit composed of Navy SEALs, Navy EOD, Marine Reconnaissance Divers, and support personnel—fulfills an important part of the requirement. NSCT-1 employs unmanned underwater vehicles, marine mammals, and divers to conduct low-visibility mine exploration, reconnaissance, and clearance operations in waters from 600 to 10 feet deep. The Navy’s science and technology effort is also investigating the effectiveness of precision-

delivered Joint Direct Attack Munitions (JDAM) against certain SZ/BZ mines and obstacles. Early indications are that this approach may well provide an interim SZ/BZ MCM assault breaching capability as early as FY 2006-2007.

In the far-term (FY 2012 and beyond), the science and technology endeavor is pursuing “smart” bomb- and gun-delivered darts designed to destroy concentrations of SZ/BZ mines. This promising technological approach offers the potential for standoff operations and the removal of men and mammals from the minefield—two key MCM goals.

### Through the Beach and Beyond...

Once ashore, naval expeditionary forces must be capable of detecting, breaching, clearing, proofing, and marking mines and obstacles, and of disseminating mine and obstacle data. From the critical Navy-Marine Corps handoff in the beach vicinity to the force objectives and beyond, Marine Corps commanders must be able to detect and avoid ground mines and obstacles when possible, and breach them when necessary.







The Marine Corps' current inventory of MCM systems includes the AN/PSS-12 Mine Detector (a metal detector), explosive breaching systems—Assault Amphibian Vehicle with Mk154 Triple-Shot Line Charge, Mk155 Line Charge, and Anti-Personnel Obstacle Breaching System (APOBS)—and mechanical breaching/clearing/proofing systems (M1 tank with track-width mine plow and armored D-7 dozer). In aggregate, these systems provide a limited and aging deliberate breaching

capability. They do not meet the detection, speed, and responsiveness requirements of the modern battlefield.

Three acquisition programs promise to significantly improve Marine Corps MCM capabilities.

#### **Advanced Mine Detector (AMD)**

With an initial operational capability of FY 2008 and full operational capability of FY 2009, AMD will employ ground penetrating radar technology to detect buried anti-personnel and anti-tank mines. This is a key capability in light of the worldwide proliferation of low and non-metallic mines

#### **Coastal Battlefield Reconnaissance and Analysis (COBRA) System**

COBRA is a remote, multi-spectral minefield sensor that may be flown on manned or unmanned aviation platforms. In development Block 1, COBRA will offer standoff detection of surface minefields and obstacles, and provide beach and inland area intelligence data. In subsequent development blocks, COBRA will be enhanced to detect mines and obstacles in the surf zone, and then inland and buried minefields





### **Assault Breacher Vehicle (ABV)**

With an initial operational capability scheduled for FY 2006 and full operational capability in FY 2007, ABV will be a single-platform mine-field breaching/clearing/proofing/marketing system that possesses the speed and mobility of modern mechanized forces. Combining two Mk155 Line Charges, a Full-Width Mine Plow, and a breached lane marking system on an M1 tank chassis, the ABV will offer deliberate and “in-stride” breaching capabilities – allowing commanders to maintain initiative and momentum Marine Corps

MCM doctrine, training, and equipment are continuously evolving to cover capability gaps, replace obsolete equipment, and meet the challenges posed by newer threats, such as Improvised Explosive Devices (IEDs), off-route mines, and anti-helicopter mines.

Current Marine Corps MCM systems are challenged in providing force commanders with the desired “in stride” capability to achieve and maintain initiative and momentum in a full spectrum anti-access environment. The Marine Corps developed its own MCM master plan, designed to fill remaining capability gaps and provide a road map for the future, which was implemented in 2004.

### **MCM for the Global War On Terrorism...**

Operations in the Global War On Terrorism require the fielding of systems designed to remotely detect IEDs and mine-initiated ambushes to ensure the mobility of the Marine Air-Ground Task Force (MAGTF) while ashore. Testing on many technologies to locate off-route, semi-buried mines and IEDs is currently underway, in conjunction with the Joint Area Clearance Advanced Concepts Technology Demonstration office. One system that shows particular promise is the Change Detection Work Station (CDWS), which is being rushed into service with Operation Iraqi Freedom II deploying forces. The CDWS compares baseline image data with real-time battlespace intelligence to detect abnormalities and identify potential ambush sites along main supply routes and likely maneuver corridors. CDWS is a key element in the tactics, techniques, procedures, and material solutions that the Marine Corps is developing to ensure unhindered MAGTF mobility throughout the battle area.



# Transition of Stability and Support Operations (SASO) for Pre-Deployment Training in Support of Operation Iraqi Freedom III

The Marine Corps War Fighting Laboratory (MCWL) has conducted urban experimentation since 1997. In order to prepare and train operating forces for urban experiments, MCWL developed a comprehensive Basic Urban Skills Training (BUST) and Stability and Support Operations (SASO) Training Syllabus. Training and Education Command (TECOM) will leverage all existing material and knowledge associated with the War Fighting Laboratory's extensive experimentation, and provide the operating forces with the same level of applicable training

synonymous with previous SASO exercises in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). TECOM has begun SASO training support for Fleet Marine Force (FMF) units preparing for OIF III deployments.

The SASO training package consists of theatre-specific pre-deployment training adapted to current operational environments as requested by OIF III deploying forces. The standardized pre-deployment training program consists of the following three packages:







### ***Basic Urban Skills Training (BUST)***

BUST is conducted at the deploying unit's home station. BUST focuses on individual and collective tasks associated with operating in an urban environment.

### ***Revised Combined Arms Exercise (RCAX)***

RCAX is conducted aboard Marine Air-Ground Task Force Training Command (MAGTFTC). RCAX reflects the current revised CAX schedule based on OIF training requirements and is comprised of an

11-day training schedule. Specific events include a convoy operations live-fire event, a company live-fire and maneuver event, and a Military Operations in Urban Terrain (MOUT) company live-fire event. (This is based on the slated construction of an interim MOUT facility at MAGTFTC in winter 2004.)

### ***SASO Mission Rehearsal Exercise (MRE)***

SASO MRE is conducted at March Air Reserve Base, Riverside, CA. The exercise reflects current operational requirements and comprises an eight-day schedule. Specific events include five days of SASO-specific training events and a three-day Final Exercise based on current theatre-specific requirements. SASO pre-deployment training is the precursor to the institutionalization of an Urban War Fighting Training Capability (UWTC) within the Marine Corps. It is imperative that the transition ensures the success of future efforts to incorporate all aspects of urban training within the current Training and Education Continuum.



## Marine Corps Warfighting Laboratory

The Marine Corps Warfighting Laboratory was established in October 1995 as a critical engine for change within the Marine Corps Expeditionary Force Development Process. The Lab conducts concept-based experimentation to develop and evaluate tactics, techniques, and procedures (TTPs), as well as technologies, in order to provide the warfighter with enhanced future warfighting capabilities. These technologies and TTPs are field tested in concept-based experiments conducted with the operating forces.

Marine Corps experimentation is a key enabler of naval transformation, and the Lab recognizes that there are three worlds of innovation and transformation—solving *immediate problems*, realizing the next service, and charting a way for the *service after next*.

Operational experimentation benefits the warfighter by developing capabilities to solve *immediate problems* facing the current force. Under Project Metropolis, the Lab has worked closely with the operating forces in the development of urban tactics, techniques and procedures, resulting in a Basic Urban Skills Training (BUST), package. The combat experience of Third Battalion, Seventh Marines during Operation Iraqi Freedom I (OIF I) highlighted the value of BUST training and, at the request of the First Marine Division, the Lab developed a preparatory training package for all its infantry battalions deploying for OIF II. BUST, which has transitioned to the Training and Education Command, is planned to be provided to OIF III units.

The Lab serves as the Marine Corps access point to the larger science and technology (S&T) communities, such as the



Office of Naval Research (ONR) and Defense Applied Research Program Activity. Capitalizing on this capability, the Deputy Commandant for Combat Development designated the Lab as executive agent for Operation Respond and the Marine Corps Improvised Explosive Device Working Group (IED WG). Operation Respond is a Secretary of the Navy initiative that provides a venue for Marines to identify emerging Operation Enduring Freedom (OEF) and OIF needs, and serves as a mechanism for the S&T communities to rapidly



respond to their requests. Some success stories from Operation Respond include several new and improved types of body armor, dust abatement solutions, explosive resistant coating, unmanned ground and aerial vehicle fielding and improvements, and language translator support.

Established in December 2003, the IED WG brings an increased focus on this particular high-profile threat to forces operating in Iraq and Afghanistan. The IED WG is comprised of Marine active and reserve personnel, along with civilian contractors and representatives from the ONR and the Navy Explosive Ordnance Disposal Technology Division. The IED WG works closely with other services to identify and develop technology, programs, and procedures to address the IED threat, and it maintains close ties with other organizations involved in the IED arena. The IED WG also serves as the Marine Corps conduit to the Joint Integrated Process Team for IED Defeat, headquartered in the Pentagon. To date, the IED WG has identified and facilitated the delivery of a radio frequency jamming capability, protective armor and clothing, robots,

X-ray detection devices, thermal imagers, and other items of equipment. Current high priority projects include cellular telephone jamming, a pre-detonation device for IEDs, and change-detection technology to identify IEDs with airborne platforms and sensors.

The Lab also conducts experimentation to identify requirements and solutions to achieve the capabilities required by the *next service*. This is accomplished through our Sea Viking experimentation efforts that are focused on operationalizing the Distributed Operations (DO) and Ship To Objective Maneuver (STOM) future warfighting concepts.

Sea Viking 2004 (SV 04) experimentation focused on tactical-level on the move/over the horizon (OTM/OTH) communications and position location information (PLI). At the request of Marine operating forces, the Lab's Expeditionary Tactical Communications System (ETCS), which provides OTM/OTH voice communications and PLI, will be assessed in Iraq where it will augment legacy systems. Sea Viking 04 also saw the initial development and assessment







of a true on-the-move battalion combat operations center.

Building on previous experimentation, the Sea Viking 2006 (SV 06) campaign will examine enhanced training and equipment to enable a forward deployed Marine Air Ground Task Force (MAGTF) to conduct and support Joint Forcible Entry Operations. SV 06 will conduct live force experimentation of the emerging DO concept. The intent of this initiative is to examine the employment of networked forces over an extended battlefield to gather information, exercise influence, interdict selected targets, and support other naval and joint operations. DO will enhance the MAGTF commander's ability to locate enemy forces and engage them with capabilities, ranging from close air support to direct assault. SV 06 will also examine a sea-based battalion OTH Ship

to Objective Maneuver assault, seeking to exploit the results of the MAGTF's distributed operations.

The Lab also assists in the development of the *service after next* through long-range, open-ended wargaming, which enables the Marine Corps to address emerging threats and capabilities, and support concept development.

The Marine Corps Warfighting Laboratory is a focal point for exploration of future warfighting concepts and experimentation in support of both the Marine Corps combat development process and the Marine Corps contribution to Joint Concept Development and Experimentation, ultimately leading to the transformation of expeditionary warfighting forces for the future.



## Training and Education Transformation

All training and education (T&E) programs are evaluated as parts of a career-spanning continuum. The T&E Continuum provides a template for a systematic review of all individual and unit T&E initiatives, including entry-level training (such as military occupational specialty (MOS), schools), skill progression training, professional military education (PME), common skills training, and unit training. Skill progression training diminishes over time, while professional military education increases as a Marine progresses through the ranks. Experience is the ever-present

constant that determines the rate at which a Marine trades skill progression training for professional development and PME. The Continuum provides perspective focus and balanced T&E development.

Training and Education Centers of Excellence (TECOEs) are responsible for linking all training and education programs to the Continuum. TECOEs are categorized as MOS-specific centers; skill centers, such as martial arts and marksmanship; climate/geographic centers, such as the Mountain Warfare Training Command (MWTC); or functional centers,







such as the Marine Aviation Weapons and Tactics Squadron (MAWTS) and Marine Air-Ground Task Force Training Command (MAGTFTC).

A continuing review of entry-level training has resulted in efficiencies saving hundreds of manpower training years. Further review will identify additional T&E gaps, redundancies, and opportunities. Resulting improvements will raise individual and collective combat readiness. TECOEs are also responsible for developing a key element of the T&E Continuum: the MOS Roadmap.

Founded on doctrine, core competencies, and operational requirements, the Continuum is the cornerstone of training for every Marine.

**Marine Corps MOS Roadmaps** MOS Roadmaps provide a guide for Marines through the Training and Education Continuum. At a single source, the individual Marine will have access to general and specific career training, education requirements, and opportunities across the Continuum. From Private to Master Gunnery Sergeant/Sergeant Major and

from Second Lieutenant to General, the MOS Roadmap assists Marines in successfully navigating their tour of duty. Roadmaps display requirements of the MOS Manual in addition to other elements, including skill progression training, PME, billet assignment/unit training, and voluntary education. A significant benefit of MOS Roadmaps is that they provide mentors and leaders a “map” for counseling junior Marines on career training and education.

Draft editions of MOS Roadmaps were initially published on the Training and Education Command (TECOM) website beginning in May 2004. Additionally, Marines completing MOS schools are provided hard copies of current Roadmaps. Roadmaps are changed as requirements demand.



## Mission-Capable Training Ranges

Marine Corps combat readiness depends on the continued availability of ranges and training areas that provide realistic, mission-oriented training. The Marine Corps Master Plan of October 1997 highlights the importance of ranges and trainings areas, as well as the need to properly develop and manage these key resources. The Marine Corps vision for installation and range transformation is contained in Marine Corps *Installations 2020 (I-2020)*. A range-specific master plan is in the early stages of development and, in support of that effort, The Marine Corps Training and Education Command (TECOM) recently initiated an assessment of Corps-wide range requirements. The initial product of this effort, a Marine Corps Range Capabilities Document (RCD), will provide a set of unconstrained

range requirements for accomplishing urgent and anticipated future training.

TECOM has established six cornerstone objectives for transforming ranges and trainings areas, including:

- 1** Preserve and enhance the live-fire combined-arms training capabilities of Marine Corps Air Ground Combat Center/Marine Air Ground Task Force (MAGTF) Training Command, 29 Palms, CA, and Marine Corps Air Station, Yuma Range Complex, AZ.
- 2** Recapture the MAGTF and unit training capabilities of the nation's two premier littoral training areas, Camp Lejeune, NC, and Camp Pendleton, CA.
- 3** Leverage technology to support every level of training with a goal of providing timely and objective feedback to the training audience.







**4** Honor our commitments to protecting the environment, while preserving and enhancing our ability to conduct live-fire and maneuver training.

**5** Ensure that our training complexes are available to, and capable of supporting, cross-service training.

**6** Support the emerging Joint National Training Capability with the common range infrastructure and systems architecture to ensure effective joint training.

Overall, the Training and Education Continuum and the programs supporting TECOM have the resources necessary to accomplish their goals and missions. However, there are areas of significant concern. There is an increasingly recognized need to make additional investments in range instrumentation, targets, and simulation technologies to upgrade and modernize our training. Current range-complex configurations are not optimal for today's training requirements, and our ranges may not be adequate for anticipated weapons systems. Of even greater

concern, they do not provide sufficient unconstrained maneuver space for MAGTF training. All of our current range-planning initiatives are aimed at addressing these concerns to assure our ability to meet future training requirements.

Specific issues on which we are concentrating include:

Marine Expeditionary Brigade (MEB)-level fire and maneuver training area;

MAGTF (MEB-level) Military Operations in Urban Terrain (MOUT) facility (Large-Scale MOUT);

Improving instrumentation and feedback systems, and targets; and,

Mitigating encroachment on maneuver space at our premier littoral training bases—Camp Lejeune and Camp Pendleton.

The Marine Corps has made considerable progress in the past four years on the cataloging, assessing, managing, and funding of its critical range and training area complexes. The assessments of our complexes for their capabilities, capacities, limitations, and encroachments are well underway. Progress has been made in assessing and quantifying the impacts of encroachment and incorporating those assessments into a comprehensive range management system. We have made small, but important, investments to initiate better range maintenance and modernization programs, and currently have range modernization underway at 29 Palms, while other installations are programmed to begin executing in FY 08. Finally, we remain aware of our dual responsibilities of providing stewardship for these precious resources and providing well-trained Marines that are ready when America calls.

## Marine Corps Martial Arts Program (MCMAP)

From its inception in 1775, the Marine Corps has distinguished itself as a Martial Culture. The legacy of our Corps is built upon the close combat of ships of sail, the storming of the bois de Belleau, and the holding of “Bloody Ridge” on Guadalcanal. In order to better prepare Marines for the conflicts to come, the 32nd Commandant of the Marine Corps, General James L. Jones, envisioned a program that would provide Marines the tools to conduct Military Operations in Urban Terrain (MOUT) and to realize the potential of every Marine as a warrior. The Marine Corps Martial Arts Program (MCMAP), managed by the Martial Arts Center of Excellence (MACE), is the product of that vision.

The Martial Arts Program is based on five, colored-belt levels with six different degrees of Black. Each belt level is broken down into three disciplines, each of which a Marine must become proficient in before attaining the next belt level. The mental, character, and physical disciplines of the warrior are the foundation of the Martial Arts Program. The mental discipline consists of warrior studies, martial culture studies, combative behavior studies, and other professional military education. The character discipline is built around the Marine Corps’ core values: honor, courage, and commitment. The character discipline stresses the role of the warrior on and off the battlefield. The physical discipline consists of the techniques taught at each belt level. Through the successful synergy of these disciplines at each belt level, a Marine will enhance their own warrior spirit.

The following are the belt levels from beginner to expert, with a description of some of the lessons for each belt:



**Tan Belt**—Basic techniques and an introduction to the martial culture.

**Gray Belt**—Expansion on basic techniques, introduction to ground fighting and force continuum.

**Green Belt**—Expansion on Gray Belt techniques, ground fighting, and an introduction to free sparring.

**Brown Belt**—Expansion on Green Belt techniques, ground fighting, free sparring, and basic firearm retention and disarmament techniques.

**Black Belt, 1st Degree**—Expert techniques, counter pistol to the head, advanced anatomy and physiology.

**Black Belt, 2nd to 6th Degree**—Marines designated as Instructors or Instructor Trainers, Military Occupational Specialties 8551 and 8552, respectively, are authorized to advance to these belt levels. The emphasis in these degrees is placed on community service, unit training, professional studies on martial cultures, and advanced skills within the Martial Arts Program.



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The MCMAP techniques, complemented with subsequent training and sustainment to more advanced levels, provide every Marine with the ability and confidence to fight in hand-to-hand combat using any weapon available. The techniques also provide every Marine the self-discipline to understand the responsible use of force, both on and off the battlefield. The effective use of these two disciplines ensures that the Marine Corps will win our nation's wars and secure the peace in the same battle. With the knowledge of the spectrum of violence (force continuum) taught during Gray Belt training, and the combination of non-lethal techniques taught in Tan

Belt, Marines are equipped with the ability to effectively engage in the growing trend of Military Operations Other Than War (MOOTW).

The MACE is located at the recently dedicated Raider Hall in Quantico, VA. From Raider Hall, the MACE conducts four Martial Arts Instructor Trainer courses a year. Upon completion of the physically demanding, seven-week course, a Marine earns status as a First Degree Black Belt and Martial Arts Instructor Trainer. The minimum requirements to attend the course are: Green Belt Instructor, rank of sergeant or above, 1st Class Physical Fitness Test, and a 2nd Class Swim Qualification.

## Aviation Command and Control Transformation

The Marine Air Control Group provides the Aviation Combat Element commander with the Marine Air Command and Control System (MACCS) agencies necessary to exercise command and control of aviation assets to support the Marine Air-Ground Task Force, naval, and joint operations. These agencies provide the ability to plan, supervise, and influence the application of the six functions of Marine Aviation.

The MACCS is modernizing to improve the expeditionary air Command and Control

(C2), sensor, and weapons capabilities that it will provide between FY06 and FY10. The key thrusts of this modernization effort include expeditionary packaging, modern information technology, and joint interoperability.

In conjunction with modernization, Marine Aviation C2 is also preparing for a transformational convergence of capabilities, organizations, doctrine, training, and personnel to support Expeditionary Maneuver Warfare and the massing of combat effects by dispersed and distributed naval,





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joint, and coalition assets. That convergence will be managed and guided by the Aviation C2 Transformation Task Force (TTF).

### **Aviation C2 Transformation Task Force**

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The Deputy Commandants for Aviation and Combat Development chartered the Aviation C2 TTF in November 2002 to ensure the effective introduction of the Aviation C2 Family of Systems (FoS) into the operating forces. The Marine Corps has programmed the FoS to be fielded between FY06 and FY10, beginning with Capability Set I Complimentary Low Altitude Weapon System and its interim C2 capability. The cornerstone of the FoS—the Common Aviation C2 System (CAC2S)—will reach Initial Operational Capability in FY07. Networked ground sensors and unmanned aerial vehicles follow in FY08 through FY10. The TTF provides a proactive mechanism—which will be used by Headquarters Marine Corps advocates, expeditionary force development organizations, acquisition commands, supporting establishment activities, and operating forces—to formulate and implement changes to the Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) pillars associated with fielding of the Aviation C2 FoS. The TTF’s membership comprises operating force and supporting establishment stakeholders in the transformation process. The TTF will develop and execute an Aviation

C2 transformation plan by assessing new combinations of concepts, capabilities, people, and organizations. A flag-level Executive Steering Committee will be formed to provide strategic leadership and oversight of the transformation process.

### **Concept Development**

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During early FY05, the TTF will develop a Functional Concept for Aviation C2 that will provide the foundation for all transformation activities. This future concept will articulate the Marine Corps’ vision for Aviation C2 in the 2015-2020 period and will guide the transformation of the legacy MACCS into the capabilities of the future Aviation C2 FoS. The concept will draw upon and contribute to other future naval and joint concepts, such as Expeditionary Maneuver Warfare, Distributed Operations, Seabasing, FORCEnet, and Network Centric Warfare.

### **MACCS-X**

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To support transformation and the introduction of new equipment, the Marine Corps will create a transformational unit, tentatively named MACCS-X. Subject to the transformation plan developed by the TTF, MACCS-X may support developmental and operational testing, evaluate new organizational structures, validate recommended changes to DOTMLPF, and aid in developing a robust concept of employment for the Aviation C2 FoS.

## Operational Support Airlift (OSA)

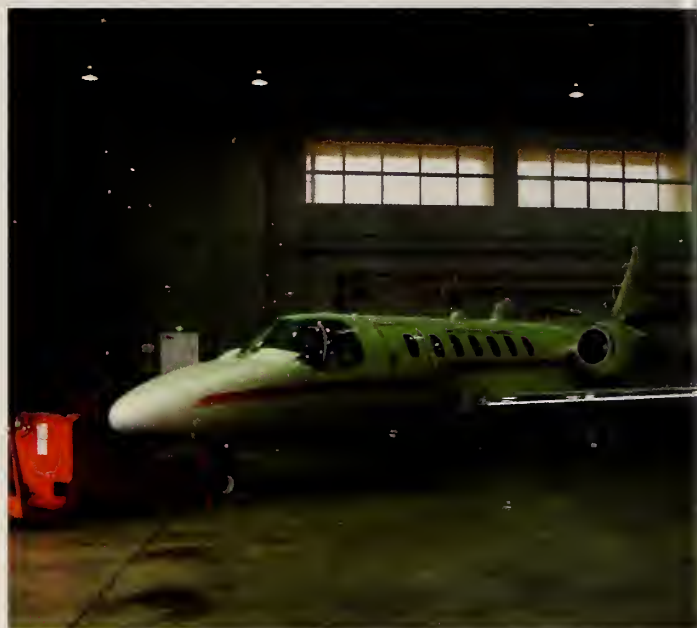
The Marine Corps presently operates four different types of aircraft to fill its Operational Support Airlift (OSA) requirements: the C-9 Skytrain, UC-12 King Air, C-20G Gulfstream IV, and UC-35 Citation. OSA aircraft provide air logistics support to our warfighters by moving high priority passengers and cargo between and within theaters of operation. OSA aircraft carry out short-notice, time-critical, logistical air movements, relieving front-line tactical squadrons from this necessary, but non-tactical, mission. By freeing our tactical aircraft assets from routine missions, OSA aircraft are an effective combat multiplier for the Marine Air-Ground Task Force (MAGTF), joint force, and regional combatant commander.

Below are recent examples (by type of aircraft) that illustrate Marine Corps OSA's relevance to the Global War on Terrorism:

**C-9:** Provided airlift support to MAGTF-8, the lead element of a multinational interim force following the resignation of Haitian President Jean-Bertrand Aristide in February 2004; and, transported Marine Corps forces and equipment to and from southwest Asia.

**UC-12:** Deployed to Kuwait and Iraq in support of 1st Marine Expeditionary Force (I MEF) during Operation Iraqi Freedom, where these aircraft delivered key combat personnel and more than 70,000 pounds of critical cargo in support of the Marine forces; and, provided airlift support to MAGTF-8.

**C-20G:** During the opening months of Operation Enduring Freedom, the Marine Corps C-20G (based at MCAS Kaneohe Bay, HI) forward-deployed to Bahrain in support of Marine Forces Pacific (MARFORPAC) and the warfighters in theater. This aircraft continues to provide frequent global airlift support.



**UC-35:** Transported critically needed Combat Air Patrol (CAP) pilots throughout the United States to their respective bases, immediately following the terrorist attacks of September 11, 2001. During this period, civilian aircraft were precluded from flying in the continental United States. Marine Corps UC-35's are currently forward-deployed in southwest Asia.

In the continental United States, Marine Corps OSA provides support to MAGTF combined exercises, such as Desert Talon, in addition to joint airlift support coordinated by US TRANSCOM. The incorporation of OSA into MAGTF exercises relieves participating tactical squadrons from much of the exercise-associated administrative logistical airlift requirements. This, in turn, enables the tactical squadrons to focus more time and resources on combat-related flight training.

Acquisition of relatively low-cost, commercial-off-the-shelf aircraft with minimal militarization provides MAGTF commanders swift, on-demand support. Current initiatives will ensure the availability of short-notice, time-critical, logistical air support using more capable aircraft fully integrated into Marine Corps operations.



## Joint Blue Force Situational Awareness (JBFSa)

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The Marine Corps is actively participating in Joint Blue Force Situational Awareness (JBFSa) Integrated Product Team (IPT) efforts to address the interoperability shortfalls existing between the numerous Blue Force (friendly force) tracking and situational awareness systems in use today, and to define the capabilities required to achieve a joint solution in the future. The JBFSa IPT is a multi-service endeavor to enhance the combat effectiveness of Blue Forces and integrate the Blue Force Common Operational Environment (COE) into a Common Operational Picture working within the Global Information Grid (GIG). It will identify, classify, and characterize the status of joint and coalition forces operating throughout the battlespace, both within and beyond the line of sight. The Blue Force COE GIG will operate globally, providing 24/7 support to the full spectrum of operations (from major combat to peacetime engagement), as well as stability and sustainment operations, and home-station training.

Although valuable, today's service-specific Blue Force Tracking (BFT) systems tend to operate independently with separate types of mission-profile support, user devices, information-dissemination architectures, and messaging standards. When implemented across the services, Department of Defense agencies, and coalition forces, the objective JBFSa system(s) will result in the seamless sharing, distribution,

and display of Blue Force information to improve overall situational awareness.

Using lessons learned from Operations Enduring Freedom and Iraqi Freedom—and tying their efforts to the overall JBFSa effort—the Marine Corps and Army have developed a strategy to converge to a single, joint BFT capability that will allow units on the battlefield to see, and be seen by, nearby units without having to contend with equipment integration issues and communication constraints. Near term efforts to standardize operational architectures and align software baselines will contribute significantly toward solving the interoperability challenges, associated with achieving a single land component picture and disseminating information needed for improved battlespace situational awareness.

Future conflicts will involve unpredictable enemy actions on an asymmetrical battlefield, requiring greater functional coordination across all battlespace domains. This increased coordination will rely upon the rapid and widespread dissemination of all Blue Force location, status and intent. JBFSa will focus on better identification, retrieval, dissemination, correlation, filtering, fusion, and other processing of Blue Force data. It will also improve the Marine Corps' ability to conduct distributed operations by the timely transport of JBFSa data over existing and planned communications and networking infrastructure to the warfighters who need it.

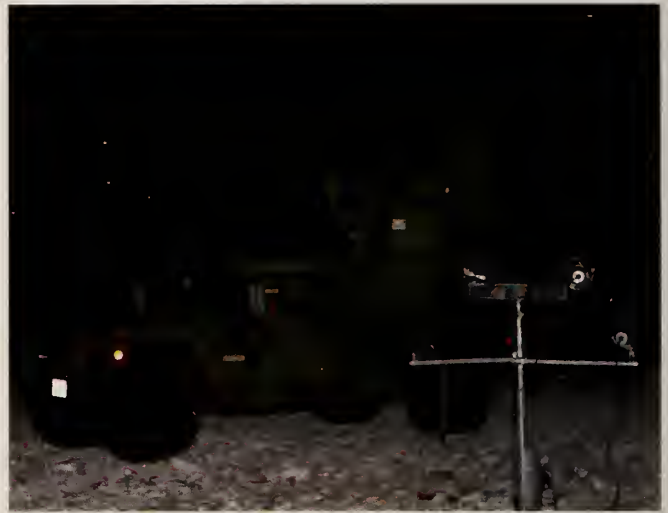
## Transformational Communications Architecture (TCA)

The Transformational Communications Architecture (TCA) is an overall joint communications strategy that aims to provide data connectivity to all echelons of the force. Specifically, TCA is the end-to-end satellite communication transport segment of the Department of Defense Global Information Grid (GIG).

This architecture will deliver more than an order-of-magnitude improvement in connectivity, capacity, interoperability, availability, security, and speed. The TCA provides this through the incorporation of advanced laser and radio frequency technologies, software configurable terminals, packet switching, dynamic bandwidth resource allocation, and network and interface standards. It also implements a new concept for the management and operation of large integrated and interconnected networks, which concurrently and seamlessly connect people and machines with high reliability, survivability, and responsiveness.

The programs that will form the foundation of the TCA are the Joint Tactical Radio System, Transformational Satellite Communications System, Advanced Extremely High Frequency Satellites, Mobile User Objective System, and future satellite constellations for the intelligence and NASA communities. The new capabilities they provide include ground terminals and satellite constellations that will meet future networked force requirements.

The TCA will provide dynamic, end-to-end accessibility and coverage for global requirements across the civil, federal, and intelligence communities. In addition, the TCA will benefit from an all-Internet



Protocol (IP) environment, while providing an integrated network management system, end-to-end information dissemination processes, and security management.

Once realized, the TCA will enable future space-to-space, space-to-ground, airborne-to-space, and selected ground and control systems to provide interoperable, wideband-protected, broadcast, and data-relay communications. The TCA will also provide operational management systems and the associated interfaces necessary to provide the prescribed communications capability across the GIG and the intelligence community.

TCA provides a robust, dynamic, and flexible information enterprise environment to warfighters. Every asset in the battlespace is addressable and capable of generating, processing, or routing information. Ground, airborne, seaborne, and space-based communication components use well-defined, interoperable protocols and interfaces for efficient data exchanges at the tactical level, dynamic information sharing at the operational level, and responsive decision-making and dissemination at the strategic level.



## C2 On-the-Move Network Digital Over-the-Horizon Relay (CONDOR)

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Operation Iraqi Freedom highlighted the need for improved on-the-move and beyond-line-of-sight data capabilities for maneuver units. The C2 On-the-Move Network Digital Over-the-Horizon Relay (CONDOR) Capability Set provides these capabilities throughout the Marine Air-Ground Task Force MAGTF. It enables the use of command and control applications and tactical data radios to feed the Common Operational Picture (COP), while on-the-move and over-the-horizon. Building the COP increases situational awareness of friendly units and disseminates intelligence products on enemy locations, significantly enhancing the information available for the leader's decision cycle.

The CONDOR Capability Set bridges the gap between today's radio inventory and the future Transformational Communication Architecture (TCA). CONDOR's fundamental premise is to make the tactical network accessible to the warfighter, using organic Marine Corps assets. This architectural approach is based on open standards that provide encrypted connectivity to the

forward edge of the battlefield, which will readily accept Joint Tactical Radio System (JTRS) terminals as they are fielded.

The CONDOR Capability Set will consist of the following three variants: CONDOR Gateway, CONDOR Point-of-Presence Vehicle (PoP-V), and CONDOR Jump Command and Control Vehicle (JC2-V). The CONDOR Gateway connects areas limited to line-of-sight communications, using the Enhanced Position Location Radio System\, and extends their coverage beyond the line-of-sight. The CONDOR PoP-V provides units with legacy radios the ability to connect to the tactical data network. The CONDOR JC2-V provides a mobile command post capability with data communications during displacements. This JC2-V variant provides on-the-move situational awareness by maintaining the network connectivity of C2 applications.

The CONDOR capability set will provide the on-the-move and over-the-horizon capability that will prepare the Marine Corps for the transition to a net centric force.

## Transition Switch Module (TSM)

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The Transition Switch Module (TSM) supports Marine Air-Ground Task Force (MAGTF) command and control mission objectives. The TSM provides local and remote subscriber access, circuit switching and multiplexing, call service attendant, transmission multiplexing, transmission security, and patching capability for deployed Marine forces. The TSM is designed to operate within the context of the current and planned MAGTF C4I architecture as well as providing C2 services to MAGTFs that are capable of conducting operations across the spectrum of conflict. The TSM supports the communication requirements of the commander as they provide complementary capabilities and enabling operations in support of Joint, Combined, and Coalition forces.

TSM will also be a key element in the Marine Corps' transition from legacy

tri-service tactical switches to current commercial technology. TSM will provide three major functions. The Deployable End Office Suite (DEOS) will provide voice-circuit switching and call-service-attendant capabilities. The Remote Subscriber Access Module (RSAM) will extend these services to remote users. The Deployable Integrated Transport Suite (DITS) will provide bandwidth management, multiplexing, transmission security, and technical control functions. The DEOS, RSAM, and DITS will be integrated into transit cases for unit transport.

This program will maintain Marine Corps joint interoperability as the other services transition to commercial-off-the-shelf switching technologies. It also allows for a reduction in the use of aging legacy equipment and more flexible modernization options.



## Marine Corps Enterprise Information Technology Services (MCEITS)

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Advances in technology, new DoD and Navy architectural guidance, and emerging user requirements demand a new information technology framework—one that is more effective, efficient, secure, and responsive.

Marine Corps Enterprise Information Technology Services (MCEITS) is an ongoing initiative for realigning and consolidating the Marine Corps Information Technology (IT) environment. MCEITS consists of a hosting infrastructure within Enterprise IT Centers, an Enterprise Shared Data Environment (ESDE), an Enterprise Portal Framework, and other Enterprise Services.

MCEITS Enterprise IT Centers will support the data processing requirements of the entire Marine Corps. These IT centers will provide more consistent service delivery, improved access to technology, improved personnel management, better data protection, and leveraged technology investments. MCEITS Enterprise IT Centers will replace the current fragmented application and data environment with a more efficient support infrastructure. MCEITS Enterprise IT Centers will be more cost effective and will enable more consistent delivery of services to participating organizations through leveraged technology investments. This new physical infrastructure will also host the ESDE, which provides a common framework for finding and accessing data (including associated metadata) required by business and warfighting domains. ESDE will enable enterprise services functions such as knowledge discovery and collaboration. In addition, information in the MCEITS infrastructure is globally accessible via an enterprise portal framework.

MCEITS provides common services, such as application hosting, access to authoritative data, security, and portal technology to both legacy and emerging programs. Functional Area Managers (FAMs) will have a means to enter their current data (one time) into the enterprise environment, while users across the Marine Corps can access that data via an enterprise portal framework. MCEITS provides a flexible, robust IT environment that integrates applications and data, and provides the common IT infrastructure for FAMs working with the Business Management Modernization Program domain owners. MCEITS also leverages the bandwidth enhancements provided by the transformational communications initiatives—such as Global Information Grid-Bandwidth Expansion (GIG-BE) and Navy-Marine Corps Internet (NMCI)—along with the IT initiatives of Marine Corps Programs of Record—such as Global Combat Support System-Marine Corps (GCSS-MC), Continuity of Operators Planning, Unit Operations Center, and Common Aviation Command and Control System—to provide a managed and controlled enterprise environment from which users can access information from anywhere on the network in support of warfighting and Supporting Establishment (SE) processes. MCEITS provides a core set of sharable IT services for all users and reduces duplicative infrastructure investments, facilitates rapid delivery of IT capabilities to the operating forces, and enables migration to a net-centric environment. It is a significant step forward, as the Marine Corps moves quickly to align with overarching DoD and naval net-centric strategy and goals.

## Public Key Infrastructure Implementation (PKI) Plan

The Marine Corps has been a leader in the Department of Defense implementation and management of Public Key Infrastructure (PKI). Since the activation of DoD PKI in 1999, the Marine Corps has aggressively implemented DoD PKI across the Marine Corps Enterprise Network (MCEN) taking advantage of the security services PKI provides such as non-repudiation, confidentiality, and integrity.

Since DoD PKI's inception the Marine Corps has systematically implemented the infrastructure necessary to successfully meet the DoD PKI requirements. This implementation includes both the issuance of public key certificates to individuals and servers as well as the infrastructure to validate certificates and the repositories of public certificates for individual and network usage. Providing certificates to individuals is accomplished primarily through the issuance of the DoD mandated ID Card, the Common Access Cards (CAC). At this time the Marine Corps has successfully issued more than half-a-million CAC's holding public key certificates for use by individual Marines, government personnel and authorized contractors. Ninety percent of all personnel required possess a CAC.

Public key infrastructure is the framework established to issue, maintain, and revoke public key certificates. The Marine Corps Network Operations Security Command (MCNOSC) is responsible for the operational management and implementation of the DoD PKI within the Marine Corps. The MCNOSC centrally manages PKI as the Registration Authority (RA) for the Marine Corps. The implementation of PKI has been decentralized across the enterprise through a series of Local Registration Authorities (LRA). Both the RA and LRA's form the issuance and

revocation infrastructure throughout the Marine Corps. The MCNOSC's RA and LRA infrastructure has remained committed to issuing and revoking server certificates and individual certificates for garrison and operationally deployed units spanning both the unclassified and classified networks. The Marine Corps' PKI implementation also includes an infrastructure to maintain the status of all public key certificates issued within the DoD PKI. The maintenance of certificates includes a public repository of public key encryption certificates and certificate revocation lists as well as an efficient means of validating certificates in use. The MCNOSC has begun installation of a MCEN-wide Online Certificate Status Protocol (OCSP) infrastructure in order to meet the validation requirements of both client machines and network servers across the unclassified and classified networks. The OCSP infrastructure will provide the user a method of validating certificates used to digitally sign e-mails and documents as well as validate certificates for authentication to private web servers and web based application both on the classified and unclassified network. The OCSP infrastructure is a critical element in allowing the Marine Corps to begin using the CAC for logical access to its unclassified network as well as authentication to web based applications.

DoD PKI/CAC will be the backbone for DoD's Identity Management Initiative for use within the Global Information Grid. The Marine Corps remains firmly committed to PKI implementation and enabling applications to take full advantage of the security services that PKI provides. The Marine Corps continues to lean forward in supporting the DoD's PKI requirements for specific programs and remains flexible to meet mission needs as they arise.



## Integrated Naval Logistics



Emerging operational concepts, technologies, processes, and organizations will transform the capability of America's armed forces to conduct distributed, multi-dimensional, joint, allied, and coalition warfare. Within this backdrop of unprecedented multi-dimensional joint warfare, the Navy and Marine Corps have begun to integrate naval logistics.

Navy and Marine Corps interdependency in both naval and joint warfighting environments, as well as the continued need to transform naval logistics—particularly

with regards to Seabasing operations—require Navy/Marine Corps logistics integration. Therefore, by agreement between their logistics chiefs in July 2003, the Navy and Marine Corps have moved beyond logistic interoperability, and are working closely to coordinate and resolve specific matters of mutual concern. They are seeking an integration of their service logistics processes to optimize support to daily operations and future sea-based logistics. Specific areas of mutual interest include logistic systems and inventory management;





logistics policies, procedures, and doctrine; and, common inter-modal naval packaging.

A Naval Logistics Integration Group addresses prioritized Navy and Marine Corps issues related to improving naval logistics, with a focus on supporting sea-based operations. Approved recommendations will be translated into guidance

and action by the services within their existing organizations. Initiatives are underway today with the Expeditionary Strike Groups to improve support of operational capabilities and improve equipment readiness of four Marine Expeditionary Units. It is from these current initiatives that we are preparing Marine and Navy logisticians for future Marine Expeditionary Brigade level operations from the sea base. Techniques, procedures, and policies are being challenged and changed.

The Marine Corps is moving toward its future vision, which requires fundamental changes in the way we provide logistics support to our Marine Air-Ground Task Forces. Ground and aviation logistics will be part of a broader integrated naval logistics effort, and move from being platform-centered to process-centered, which can seamlessly support joint operations at sea, or on land.



## Sense and Respond Logistics (S&RL)

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The Marines Corps future vision of highly maneuverable, highly flexible, decentralized operations requires a similar approach to logistics. Future operations, especially those involving Ship-to-Objective Maneuver (STOM), require an adaptable, flexible, and responsive logistic system. Sense and Respond Logistics (S&RL) embody these characteristics.

The classic, mass-based approach requires the establishment of “mountains” of materiel in relative proximity to the fighting forces. This approach relies heavily on a linear battlefield, secure logistic supply areas, and long build-up times. In this approach, massive amounts of inventory are a hedge against uncertainty. A more recent approach, Just-in-Time Logistics, attempts to hedge uncertainty by predicting and optimizing inventory and delivery. Unfortunately, the non-linear realm of today’s warfare is difficult to model successfully, and when the predictive models fail, the entire system tends to fail. Both approaches provide little or no feedback on resource consumption and supply needs, resulting in misallocation and unnecessary shortages of supplies. We believe that S&RL will enable joint efforts to integrate logistics from point-of-effect to source-of-supply/services across the services and defense agencies.

Decentralized forces can no longer concentrate supplies in “iron mountains,” but must get them delivered where and when they are needed. S&RL does not hedge uncertainty by mass or prediction, but instead hedges uncertainty through responsiveness, speed, and flexibility, which is enabled by the use of robust information technology and a highly flexible

transportation system. With information technology, S&RL receives and recognizes consumption and requirement patterns through the use of Intelligent Agents and quickly responds to these patterns. S&RL leverages the capabilities of networked-enabled forces to share logistics information, share a common perspective of the battle space, provide early awareness of consumption and needs, allow commitment tracking, and allow for reconfiguration of the logistics system when needed. Without large inventories, transportation will be flexible and quickly configurable to ensure the system can adapt to sensed patterns and needs. The best supply chain is no longer one that is highly optimized, but one that is highly adaptive and flexible.

In order to implement S&RL, the Navy and Marine Corps cannot merely modify current practices, but must pursue a network-enabled approach to operations that greatly improves the integration between operations and logistics. The S&RL Initiative aims to rapidly introduce a prototype, network-enabled logistics system into joint experimentation and identify appropriate measures to evaluate potentially transformational logistics concepts. The S&RL Prototype will be provided to the Pacific Fleet and Marine Forces, Pacific, in FY05 for further experimentation. The Marine Corps has incorporated S&RL into the Logistics Capability Development efforts that supported the Sea Viking ’04 exercise with Joint Forces Command. The S&RL Initiative will also serve as a baseline for ongoing FORCENet efforts where intelligence, operations, fires, logistics, and other areas must function quickly within a complex Common Operating Picture.

## Global Combat Support System-Marine Corps (GCSS-MC)

The Global Combat Support System-Marine Corps (GCSS-MC) program supports the future readiness of the Marine Corps. It is an ACAT IAM program that provides a deployable logistics information system capability to the Marine Corps during Fiscal Year 2007. USMC readiness will improve through the use of the programs Commercial off The Shelf (COTS) software that will modernized logistics processes embodied in the Logistics Operational Architecture. The programs shared data environment is key in providing the USMC with a timely and accurate asset posture, correct equipment readiness information, and total asset visibility, all in a deployed environment.

The GCSS-MC program recently selected Oracle as the COTS provider, and commences source selection for the Systems Integrator in 2005. Milestone B is projected to be in June of 2005.

As the Marine Corps' portion of the overarching GCSS family of systems, GCSS-MC Log C2 has been designated by the Joint Requirements Oversight Council (JROC) and the GCSS General Officer Steering Committee. It is a JROC-approved program for Marine Corps acquisition and remains a JROC special interest program. The program has the objective of acquiring and integrating information technology tools that satisfy Marine Air-Ground Task Force (MAGTF), and Combatant Commander and Joint Task Force (CC/JTF) requirements.

The goal of GCSS-MC is to provide modern, deployable IT tools for supported and supporting units. GCSS-MC, which is based on a recently completed Logistics Operational Architecture, will be further

enabled by the ongoing development of a Marine Corps Logistics Command and Control Operational Architecture (Log C2 OA). This focused architecture drives the development of tools that will better integrate current, logistics, and financial processes. These tools will include, but are not limited to, a web-based portal that provides a single point of entry to request products and services, and a logistics command-and control-capability to support MAGTF C2 processes. The key to achieving this goal lies with the establishment of an environment where GCSS-MC data and information may be shared across the Marine Corps enterprise and with other services and agencies.

The GCSS-MC acquisition strategy follows best business practices by selecting the best deployable commercial-off-the-shelf tools to enable the operational architecture and meet the MAGTF and CC/JTF requirements. Following selection of these commercial tools, the Marine Corps will select an integrator. The initial operational capability, scheduled for 2006, will be a portfolio of deployable commercial-off-the-shelf and government-off-the-shelf capabilities that mirrors industry standards, supports both peacetime and deployed wartime logistics requirements, and meets MAGTF requirements. Log C2 is an important element of GCSS-MC that enables MAGTF commanders with logistics command-and-control functionality. It supports MAGTF C2 processes and systems, enables current and emerging warfighting concepts and logistics processes, and injects logistics data into the MAGTF Common Operational Picture. Log C2 is designed to



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be functional within all elements of the MAGTF by providing logistics-specific planning and execution tools.

Currently, MAGTFs conducting the planning or execution of logistics-related tasks must rely on disparate manual processes supported by legacy applications. This creates significant inefficiencies, as well as inconsistencies in the processes and metrics used in logistics planning and execution across operating forces.

To correct this deficiency, the Marine Corps is developing and fielding the Common Logistics Command and Control System (CLC2S). CLC2S provides the MAGTF with automated logistics planning and execution tools that will complement

and be interoperable with current and emerging MAGTF, naval, and joint C2 processes and systems. CLC2S will not be a separate C2 capability, but will be the logistics/combat service support component of the overarching MAGTF C2 capability and provide input to the MAGTF's common operating picture. It has been selected by the Navy as a Pilot Program within FORCENet. CLC2S will be resident on GCSS-MC and feed both GCSS-MC and GCCS using communications parceling technologies. It is important to note that CLC2S does not require additional infrastructure in the MAGTF. It is a software solution that operates over existing networks and in the future will reside within GCSS-MC.

## Marine Corps Business Enterprise Initiatives

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Economy and focus of effort are fundamental Marine Corps doctrines. To that end, the Marine Corps Business Enterprise Office has been established to ensure our business processes are providing effective support to the warfighter, Marines, and family members—without consuming any unnecessary resources.

The Business Enterprise Office is instrumental to the Marine Corps effort in achieving its commitment to the President's Management Agenda, Secretary of Defense's transformational guidance, DoD Business Management Modernization Program, National Security Personnel System, Secretary of the Navy's Sea Enterprise vision, and a series of congressional measures that challenge the military services to transform business practices, as well as military capability.

In the Marine Corps, "business transformation" means changing the culture, business practices, processes, and organizations for a sustained warfighting advantage. Our purpose is to become the most effective and efficient Marine Corps possible, optimizing resources at every level of

command in order to free resources for investment in core combat capabilities.

Business Enterprise crosses all organizational boundaries and includes all resources, processes, and products and services that support the warfighter. We are aggressively pursuing business initiatives to drive innovation and change, initiating end-to-end process improvements, and developing the business skills and capabilities of our Marines and civilian Marines to accomplish our objectives. Our end-to-end business process assessments will result in improved effectiveness and efficiencies through regionalization, competitive sourcing, process reengineering, divestiture, or elimination of non-core functions.

As we transform our business processes, the use of tools, such as a common business information system, will provide the cost and performance information we need for effective command and control of business operations. We will monitor the results of our business transformation efforts by employing a variety of measures for effectiveness, metrics, and benchmarking.



# Installations 2020 Strategy

Marine Corps infrastructure consists of 15 major bases and stations in the United States and Japan. The Marine Corps has a long-range vision, Installations 2020 (I2020), that provides a roadmap for the future of these bases. Among the subjects that I2020 deals with are Public-Private Venture (PPV), encroachment control, sustainable infrastructure, natural resource protection, and environmental stewardship.

**Public-Private Venture** PPV is a tool that allows the Marine Corps to more quickly provide quality homes for its Marine families. Aiming to privatize 95 percent of its worldwide family housing inventory, the Marine Corps will have contracts in place to eliminate all inadequate family housing by 2007, in accordance with Defense Planning Guidance. (Construction will be phased over four to five years to maximize the number of homes available to families). Once privatized, the day-to-day management responsibility for family housing will reside with the Corps' private partners. As a member of Limited Liability Company boards, the Department of the Navy continues to participate in key business decisions, including those involving major investments and, in

the case of default by the managing partner, changes in the managing partner.

By the end of FY 2004, the Marine Corps had awarded the following PPV projects:

- MCB Camp Pendleton, CA—4,180 homes;
- MCRD San Diego, CA—five homes;
- MCB Quantico, VA—1,137 homes;
- MCAS Beaufort, SC, and MCRD Parris Island, SC—1,718 homes; and,
- MCAS Yuma, AZ—821 homes.

Through these projects, the Marine Corps will obtain more than \$870 million in housing investments, even though the Corps contributed less than \$140 million of its own resources. In addition to this reduction in up-front investment costs, the PPV projects will replace inadequate housing situations faster and provide better quality homes, community support facilities, and maintenance services than had been previously provided through traditional military construction, operations, and maintenance. These projects are self-sustaining, and provide for the long-term renovation and recapitalization of the Corps' privatized housing assets, thus, ensuring quality housing for the 50-year term of the projects.

**Encroachment Control** Monitoring, evaluating, and responding to encroachment is critical to ensuring bases and ranges are available to support mission readiness now and in the future. Encroachment is defined as any external force that causes the loss of military readiness, including the loss of use of land, air, sea, and frequency spectrum.

The Sustainable Ranges initiative is a process that integrates all aspects of installation and range/training area







management, and provides for the installations' long-term viability and ability to support realistic training. The Marine Corps is proactively involved with federal, state, and local government agencies, as well as non-governmental organizations, to provide "win-win" solutions to encroachment pressures that will ensure compatible land use to support mission readiness.

The tools used to ensure compatible land use include:

- Range/Air Installation Compatible Use Zone studies, which prevent and mitigate public exposure to hazards associated with aircraft operations and air-to-ground weapons delivery;

- Joint Land Use Studies, which assist local communities in considering the impact of military training areas on local development;

- Land Conservation (Encroachment) Partnering, which use Marine Corps operation and maintenance funds to partner with states and non-governmental organizations in acquiring "non-training" buffer lands; and,

- Community Plans and Liaison Offices at each installation, which manage various community involvement and outreach issues, including the growing pressures associated with encroachment.

***Sustainable Infrastructure*** Buildings, utilities, runways, and other fixed infrastructure are the backbone of the Fifth Element of the Marine Air-Ground Task Force and are a national asset worth nearly \$40 billion dollars. Protecting these assets, and sustaining their value for training and housing Marines, requires a continual commitment in the form of facility maintenance and repair.

The Marine Corps is committed to programming funds to adequately maintain and improve these facilities, so they will support the missions of the operating forces. To do this, the Marine Corps developed the Facilities Sustainment Model in conjunction with the Office of the Secretary of Defense. This model uses private industry standards to estimate the maintenance and repair investments needed for our physical infrastructure to reach its full lifecycle. In addition, the Marine Corps has developed the Commanding Officer's Readiness Reporting System to measure the mission readiness of facilities that support the operating forces. With this system, the Corps can target facilities for major renovation that are the most impacting to mission accomplishment.



**Natural and Cultural Resources Protection** Marines train as they fight, and that training requires frequent, repeated access to land. But, training can be destructive to land and its resources. Unless properly managed, Marine Corps lands can become damaged to the point where realistic training will be degraded. In addition, the American people have placed intrinsic values on certain natural and cultural resources. Failure to protect these resources will lead to a loss of the use of the land supporting these resources.



To ensure that frequent, repeated use of land for readiness purposes can be sustained, each installation prepares and implements an Integrated Natural Resources Management Plan and Integrated Cultural Resources Management Plan. Implementation of these plans ensures continued access to land by appropriately managing land entrusted to us by the American people.

**Environmental Stewardship** Our nation has crafted a strong environmental code of conduct, which is structured on a wide range of federal, state, and local laws and regulations, and is strengthened through increased regulatory agency scrutiny and enforcement. Due to the nature of the Marine Corps mission, environmental regulations present significant challenges, but these policies recognize that national defense and environmental protection can coexist. As the environmental stewards of our installations, the Marine Corps has engaged with regulators to make significant strides in this area. Today, Marines at all levels contribute toward this goal by performing their jobs with an increased awareness of potential environmental impacts. In addition to the INRMP and ICRMP, other efforts include Joint Land Use Studies and aggressive pollution-prevention programs.

Our hard work does not end with these initiatives. Much like encroachment, there are various impacts of environmental regulation and compliance on the Corps' ability to fully utilize its installations, which require constant vigilance and attention to ensure the Corps' operational readiness is not diminished.

## Field Food Service System

The Marine Corps is fielding the Field Food Service System (FFSS) as the replacement for the 1950s vintage M-1959 field range and immersion water heater. The FFSS offers a wider variety of menu items that can be prepared in less time, which boosts morale and customer satisfaction by decreasing the amount of time a Marine waits in line for a hot meal. The FFSS consists of three 8x8x20 ISO containers (kitchen/sanitation unit) capable of preparing a minimum of 850 meals twice daily.

This new feeding platform will better support maneuver elements throughout the Marine Air-Ground Task Force (MAGTF) theatre of operations, and allow Marine food service specialists to work more efficiently in the field environment. The combination of the FFSS and Tray



Ration Heating System (TRHS) will provide a balance of resources to best support the combat-ready Marine.

Fielding of the FFSS began in FY 2003 and will continue through FY 2006, with a total procurement of 52 systems.



# Manpower Recruiting Success

Sustaining an unprecedented record of success in filling our ranks with the highest quality of young men and women available is the hallmark of the Marine Corps Recruiting Command (MCRC). MCRC has consistently accomplished its recruiting mission for the past nine years for enlisted recruiting and 14 years for officer recruiting. These achievements provide us with the impetus to continue improving the recruiting process and enhance the quality of life for our recruiters.

The key to our success remains the individual Marine recruiter, whose tireless efforts and dedication to the task have provided the Marine Corps with its next generation of warriors. Our Corps' recruiters are ambassadors to the American public, and they represent all the virtues of the Marine Corps in a single individual. They symbolize what our young applicants aspire to become.

Recruiting duty is unique and highly selective. Those chosen to become recruiters undergo extensive screening and are considered representative of the best of what the Marine Corps has to offer.

Ensuring young men and women hear and understand the recruiting message requires continual reinforcement through marketing and advertising programs. To do this we continue to emphasize our core competencies of paid media (running commercials); lead generation (generating leads for recruiters); and recruiter support (providing the recruiters with effective sales support materials). Quality advertising aimed at our target market provides the foundation for establishing awareness about the Marine Corps' opportunities among young men and women.

Paid advertising has proven to be the most effective means to communicate our message and as a result, remains the focus of our marketing efforts. As advertising costs continue to increase it is imperative that our advertising budgets remain competitive in order ensure that our recruiting message reaches the right audience. Marine Corps recruiting successes over the past years are not only a direct reflection of a quality recruiting force, but also an effective and efficient marketing and advertising program.

In FY 2004, the Marine Corps realized unprecedented recruiting success, achieving

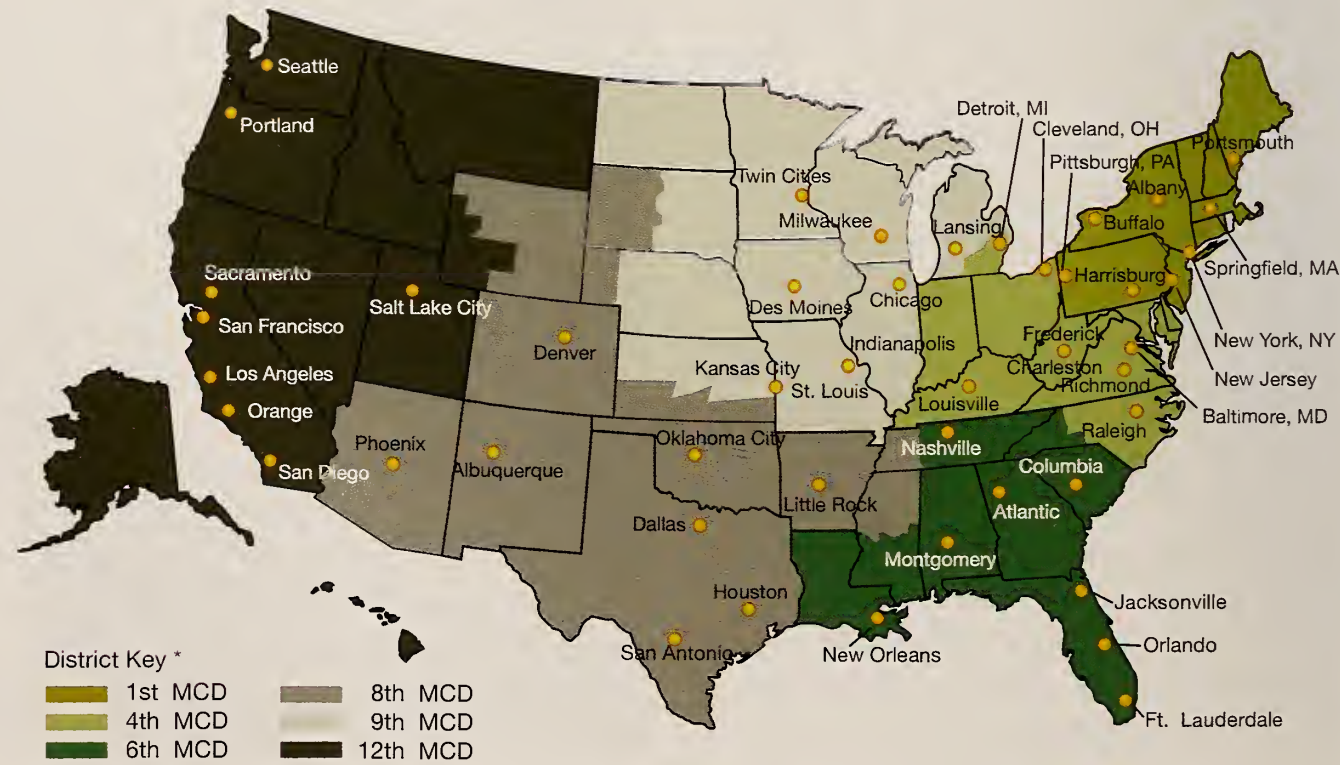


103.6 percent of enlisted contracting and 100.06 percent of enlisted shipping objectives. 97.7 percent of those shipped to recruit training were Tier 1 high school graduates, well above the Department of Defense (DoD) and Marine Corps standards of 90 percent and 95 percent, respectively. In addition, 71.55 percent were in the I-III A upper mental group-again, well above the DoD and Marine Corps standards of 60 percent and 63 percent, respectively. For officers, 100 percent of objectives in all categories were achieved. The Marine Corps Reserve also achieved 100% of its recruiting goals with the accession of 6,165 Non-Prior Service Marines and 2,700 Prior Service Marines (782 Officers and 1,918 enlisted). Additionally, 341 Prior Service Marines (76 Officer and 165 enlisted) were joined to meet SELRES mobilization requirements.

The culmination of the FY 2004 recruiting efforts enabled the Marine Corps Recruiting Command to continue a



successful recruiting legacy that has spanned the better part of the last decade. In FY 2005, as force changes are developed to pursue the Global War on Terrorism, MCRC foresees continued recruiting challenges. Arming our recruiters with the resources they need to forge the battle ahead is more important than ever.





## Marine Corps Reserve Contributions to the Global War on Terrorism

In 2004, the Marine Corps Reserve proved its importance to the Marine Corps—and to the security of the United States—both at home and in foreign lands, with more than 11,000 Reserve Marines on active duty fighting the Global War on Terrorism (GWOT). Although major combat operations in support of Operation Iraqi Freedom (OIF) ended in May 2003, Reserve Marines continue to perform critical missions around the globe. Throughout 2004, the Corps' Total Force was engaged in operations in Afghanistan, the Arabian Gulf, the Horn of Africa, Liberia, the Georgian Republic, Colombia, Guantanamo Bay, and the Philippines, proving once again that the Marine Corps remains ready, relevant, and fully capable to project U.S. power abroad in response to the ever-evolving challenges of the world.

A strong Inspector-Instructor (I&I) system and a demanding Mobilization and Operational Readiness Deployment Test (MORDT) program ensure Marine Corps



Reserve units continue to achieve a high level of pre-mobilization readiness. Marine Reserve Units continuously train to a C1/C2 standard, eliminating the need for post-mobilization certification.

More than 31,000 Reserve Marines have been activated since 9/11, with planned activations of approximately 7,000 more Reserves for the next phase of OIF. Highly-trained, well-equipped, able to operate





independently of large, land-base installations, and with a long history and tradition of fighting this nation's unconventional conflicts, the Marine Corps and Marine Corps Reserve are able to operate across the full spectrum of military conflict. We will continue to be at the forefront of the fight against Global Terrorism in the years ahead.

Marine Reserve mission accomplishments during Operation Enduring Freedom (OEF) and OIF II include:

Bagram Air Base, Afghanistan—Reserve Marines from Marine Light Attack Helicopter Squadron (HMLA)-773, Marine Aircraft Group 42, became the first Reserve light attack squadron to have known enemy kills during wartime.

Al Asad, Iraq—Lima Company, 3rd Battalion, 24th Marines, a Reserve infantry unit from Johnson City, TN, and Marines from 3rd Low Altitude Air Defense, 3rd Marine Aircraft Wing,

supported OIF II as a security element in charge of perimeter security.

Forward Operating Base, St. Mere, Iraq—India Company, 3rd Battalion, 24th Marine Regiment, took control of force protection from the U.S. Army's 82nd Airborne Division.

Al Asad, Iraq—First Platoon, Military Police Company C, Headquarters and Service Battalion, 4th Force Service Support Group (FSSG), performed several critical missions, including handling enemy prisoners of war (EPW), and providing route reconnaissance and security. As the unit moved further north into Iraq, it also participated in entry-control missions along the border.

Camp Taqaddum, Iraq—3rd Battalion, 24th Marine Regiment, unearthed some of the largest stockpiles of weapons found in 2004.

Camp Taqaddum, Iraq—3rd Battalion, 24th Marine Regiment, along with Navy medical personnel from the battalion and other 1st FSSG units, assessed the Iraqi citizens' medical needs, delivered 2,000 gallons of fresh water, distributed shoes and school supplies to children, and spoke with the community's leaders about their concerns.

Camp Taqaddum, Iraq—HMLA-775 was heavily engaged supporting Marine infantry units







with close air support in Fallujah and Ar Ramadi, as well as conducting security escorts for convoys.

Sunni Triangle, Iraq—HMLA-775 conducted missions in support of coalition operations in and around the area.

Southern Iraq—6th ESB units established a dozen fuel and water points across the region, while responding to demanding logistics requirements.

A wide range of civilian skills gives Reserve units special capabilities for non-standard missions in support of the GWOT for instance:

One hundred percent of the Marine Corps' Civil Affairs capabilities are in the Reserve. These Civil Affairs Group Marines have been absolutely critical to our success in OEF, OIF, Bosnia, and Kosovo. Marine Reserves are often uniquely suited to perform Civil Affairs responsibilities due to the experience they bring from their civilian occupations.

Reserve Intelligence Marines participated in both OIF and OEF extensively. The Reserve Ground Sensor Platoon (GSP) supported the homeland defense mission by augmenting five Joint Task Force missions in various border

regions of the United States. The platoon was tasked with guarding against drug smuggling operations, as well as illegal immigrants and suspected terrorists attempting to enter the country. Additionally, GSP augmented Task Force Tarawa and the 2nd Marine Expeditionary Brigade (II MEB), conducting perimeter security operations during OIF.

Detachment Production and Analysis Company (Det P&A) provided invaluable support to the 1st Marine Expeditionary Force (I MEF) during all phases of OIF. Det P&A provided expertise in the analysis of thousands of photographs, directly impacting combat operations. The unit also assisted in the creation of terrain studies, analyzing more than 6,000 miles of roadways to determine movement routes for forces.

Reserve Counter-intelligence (CI) Marines have been used broadly during OIF and OEF. Working alongside their active duty counterparts, Reserve CI Marines conducted battlefield interrogations, rear echelon Order of Battle interrogations, debriefings, threat vulnerability assessments, and CI force protection source operations. Marine Reserve intelligence operations greatly increased the level of intelligence support provided to combatant commanders, directly impacting the successes in the Global War on Terrorism.



The Marine Corps has initiated several transformations to enhance the Marine Corps Reserve's capabilities as a ready and able partner of the Total Force Marine Corps. A few examples are:

The establishment of a Reserve Intelligence Support Battalion (ISB) will enhance command and control of the Reserve Component (RC) intelligence assets, while simultaneously establishing additional RC intelligence structure and capabilities. This initiative establishes Reserve Marine intelligence detachments at Joint Reserve Intelligence Centers (JRICs) throughout the continental United States (CONUS), providing enhanced "reach-back" through JRIC connectivity. Additionally, the ISB will enhance the capability to provide task-organized, all-source intelligence detachments to augment

forward-deployed Marine Air-Ground Task Forces (MAGTFs).

The evaluation of options to create an active component Civil Affairs structure will provide planning capabilities for operational and service headquarters. The goal is to increase active component integration into Marine Reserve CAGs.

The Marine Corps continues to be a significant force provider and major participant in joint operations. Our successes have been achieved by following the same core values today that gave us victory on yesterday's battlefields. Our Total Force concept remains our cornerstone, providing more options for the combatant commanders. The Marine Corps' commitment to warfighting excellence will lead to success in the GWOT, while helping to ensure America's security and prosperity.





## Civilian Marines

Civilian Marines provide an invaluable service to the Corps as an integral component of its Total Force. To that end, we have published a “Civilian Workforce Campaign Plan” (CWCP), which serves as a strategic roadmap to achieve a civilian workforce capable of meeting challenges of the future.

The campaign plan sites six goals that touch upon the entire lifecycle of the Civilian Marine.

The goals of the campaign plan are:

1. Nurture, build, and grow Civilian Marines through the integration of the Corps’ value proposition throughout the entire work lifecycle.
2. Establish an integrated Total Force Management approach, including assessment and adjustment processes, for proactively shaping the workforce of the future.
3. Provide flexible development opportunities throughout the entire work lifecycle to shape the workforce.
4. Create leaders at every level to reinforce the value proposition.
5. Fortify workforce management expertise in military and civilian managers, as well as Human Resources professionals.
6. Structure the Civilian Marine performance evaluation systems to foster teamwork and accountability, and reward high performance.

In direct support of the CWCP, we have completed the initial collection of Marine Corps workforce competencies and have begun the process of developing and deploying the Civilian Workforce Development Application (CWDA). CWDA will be a web application and backend database that will facilitate the occupational and professional development of Civilian Marines. The database will contain data related to the leadership and functional core competencies of



the Communities of Interest (COIs). CWDA will provide career and professional development information to all Civilian Marines and allow them to schedule training, update personal training/qualification data, view job vacancies within the Marine Corps, and analyze data for senior leaders of the COIs for forecasting vacancies, shaping, and managing COIs. It will include information about the 21 COIs, the occupational series allocated to each COI, and professional development information for each occupation series, including the functional and leadership competencies necessary for performance of occupational series-related duties, professional development attributes related to career development, and training opportunities available to those in occupational series.

We have also completed initial development of the structured Acculturation and Mentoring Programs. The Acculturation Program will give Civilian Marines the opportunity to know and understand their role in supporting the mission of the Marine Corps. The Mentoring Program will provide a tool to enhance the Corps ability to develop a civilian workforce capable of facing the challenges of the future.



## Quality of Life

Marines continue to fight tirelessly in the Global War on Terrorism, while their families endure long and repeated absences fraught with uncertainty and stress. The mission of the Marine Corps to successfully plan and move forces according to operational commitments is a demanding one, and the pace shows no sign of lessening in the near future. In today's warfighting environment, Quality of Life (QOL) programs and services have never been more important as an aid in recruiting, retention, and readiness.



Support for deployed Marines typically includes fitness and recreation activities that are central to a youthful and vigorous force; communication with loved ones and friends to help with morale; the ability to buy snacks and other “hometown” items from tactical field exchanges; and, for some, an opportunity to continue educational pursuits. For deployed married Marines, taking care of their families while they are away is the most important deployment support we can provide. Whether QOL programs and services are provided to Marines deployed to places like Iraq and Afghanistan, or to Marines and their families back at home, they are recognized as part of the Total Family Readiness package and an essential component of mission accomplishment.

Even for an expeditionary force like the Marine Corps, the operational pace of the last three years has been extraordinary—and Marines and their families are experiencing military lifestyle challenges that many have never before faced. As operational demands have evolved, so have the QOL programs and services







necessary to support Marines and their families in an age of 24/7 news coverage of military conflicts, especially when there is the activation of large numbers of reservists whose families live away from military installations.

Since the initiation of Marine Corps Community Services (MCCS) One Source, the 24/7 online (and toll-free dial-up) information and referral service available to all Marines and their families, additional QOL programs have been added to the service, including one-on-one counseling. MCCS One Source continues to be a great source of confidential counseling and referral, to both military and civilian resources, on everything from parenting and childcare to deployment support, particularly for those Marines and families who find it difficult to utilize installation services due to hours of operation or location.

Key family readiness training programs—such as those for the Key Volunteer Network (KVN) and Lifestyle Insights, Networking, Knowledge, and Skills—are now available online and on CD-Rom for

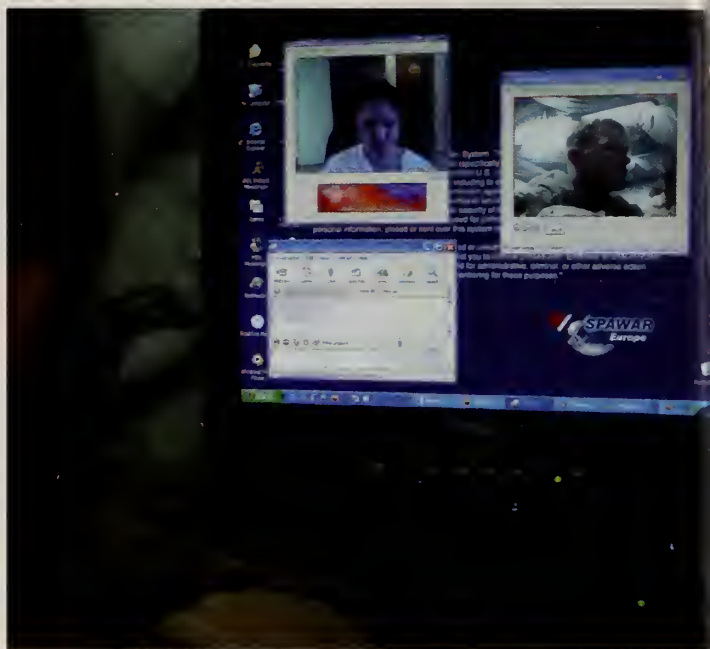
spouses unable to attend the traditional classroom setting. Another significant change is that parents of single Marines have been invited to join the local KVN organizations of the Marine Forces Reserve (MARFORRES) because of the unique role parents play in the lives of single Reserve Marines. Single Marines often live with their parents prior to deployment, and the parents are often located near the reserve unit support staff.

Family Readiness educational materials have been updated to reflect the current deployment environment. Deployment guide templates have been distributed to unit commanders and family readiness personnel, as well as Marine Corps families, to be used as educational reference guides on deployment issues and available support. These templates can be easily adapted to be unit-specific deployment guides. A deployment guide template for single Marines is currently being developed that will contain deployment checklists, common sense tips, important contact numbers and websites, which can be tailored to individual unit needs. Marines can provide the deployment



guide to their families at home to use as a ready resource, should questions or problems arise during deployments.

The Marine Corps has standardized a Return and Reunion program, which includes a “Warrior Transition” brief, “Return and Reunion for Spouses” brief, “Return and Reunion Guide for Marines and Families,” and “Caring for the Caregiver” workshop. The program focuses on managing expectations, moderating behavior, and informing participants of the



services available to them should they need assistance, experience additional stress, or notice signs of changing (negative) behavior.

A discussion on QOL in today’s environment would be incomplete without recognition that a continuation of the tempo of the last several years will further increase stress on already challenged Marines and their families. If the increased tempo of the last three years continues, QOL programs/capabilities will be strained at a time when rising customer expectations for basic QOL support already stretches the Marine Corps’ ability to meet them. Young Marines face societal risk factors, such as suicide and domestic violence, which can be exacerbated by continuous high tempo. Anecdotal evidence suggests an increase in requests for counseling visits from Marines, their spouses, and children in the past year have increased the support levels needed to serve the activated reserve community. QOL program managers face a potential difficulty in meeting both the installation QOL mission and the deployed QOL



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mission, unless there is careful planning and continued programming of available resources.

QOL programs and services must constantly evolve to meet the needs of Marines and their families, as we continue to demand more and more from them. Marine Corps leaders must prepare Marines and their families for the challenges of a continued Global War on Terrorism, and provide QOL services and programs that offer prevention and

response mechanisms, while keeping a pulse on how Marine families are handling these stressful times. The Marine Corps will continue taking steps to quantify and qualify the anecdotal evidence that suggests Marines and their families are experiencing increased stress as a result of the increased operational tempo. Such studies will help us in our on-going efforts to provide the right QOL support for today's environment. □









## Major Acquisition Programs

This chapter provides background on key acquisition programs the Marine Corps is pursuing. Many of the programs are joint efforts with Marine Corps participation or leadership, and many of the Aviation Combat Element (ACE) programs are funded with Navy appropriations. Rather than attempt to discuss every one of the nearly 600 acquisition efforts currently involving Marine Corps participation, this chapter highlights some of the larger programs that either enter production in the near term or that exploit technological advances to improve our interoperability with the joint force; Marine Air-Ground Task Force (MAGTF) command, control, communications, computers, and intelligence (C4I); MAGTF speed, mobility, and firepower; and, the logistical operations of sea-based forces.

# Acquisition Programs and Terms

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**T**his chapter is divided into five sections. The first four sections address significant programs integral to the Command, Ground Combat, Aviation Combat, and Combat Service Support Elements of MAGTFs. The final section addresses general MAGTF support programs. Program acquisition estimates are current as of the printing date of Concepts and Programs, and may not reflect the final quantities procured during FY 2005-2006.

## Note on Acquisition Terms

The descriptive summaries of the programs addressed throughout this chapter frequently refer to Department of Defense acquisition phases, decision milestones, or categories. These are as follows:

### Concept Refinement and Technology Development (Milestone A)

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This is the pre-systems acquisition phase, during which initial concepts are refined and technical risk is reduced. Two major efforts that may be undertaken in this phase are Concept Refinement or Technology Development. Concept Refinement typically consists of short-term concept studies that refine and evaluate alternative solutions to the initial concept, and provide a basis for assessing the relative merits of these alternatives. Technology Development is an iterative discovery and development process designed to assess the viability of technologies, while simultaneously refining user requirements.

Under the legacy acquisition model of 1996, these efforts were described as Milestone 0, which is entry into Concept Exploration, and Milestone I, which is entry into Program Definition and

Risk Reduction.

### System Development and Demonstration (Milestone B)

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This is the phase in which a system is developed. Work in this phase includes reduction of integration and manufacturing risk; ensuring operational supportability; human systems engineering; design for the ability to produce; and, demonstration of system integration, interoperability, and utility. Under the legacy acquisition model, this effort was described as Milestone II. Post-Milestone II activities, however, also included manufacturing development and operational testing, which are now performed after Milestone C.

### Production and Deployment (Milestone C)

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This is the phase in which the operational capability that satisfies mission needs is ensured through operational test and evaluation. This evaluation determines a system's effectiveness, suitability, and survivability. The designated Milestone Decision Authority may decide to commit to production at Milestone C, either through low-rate initial production for major defense acquisition programs, or full production or procurement for other systems. The legacy acquisition model describes most of these efforts as post-Milestone III activities. Milestone III was described as Production, Fielding, Deployment, and Operational Support.

### Acquisition Categories (ACAT)

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The Department of Defense categorizes acquisition programs into several categories, generally based on their cost-measured in FY 2000 constant dollars-or testing require-



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ments. This categorization is then used to identify oversight and approval requirements. A description of the most commonly discussed levels follows.

**ACAT I:** These are the largest acquisition programs and are also known as Major Defense Acquisition Programs (MDAP). To achieve this level of designation, a program must exceed \$365 million in Research and Development funding or exceed \$2.190 billion in Procurement funding. The Marine Corps currently leads two ACAT I programs—the Advanced Amphibious Assault Vehicle Program, which will produce the Expeditionary Fighting Vehicle, and the V-22 Osprey Program. The Marine Corps also participates in numerous joint ACAT I programs, including Global Broadcast Service and the Joint Tactical Radio System. ACAT I programs have two subcategories: ACAT IC and ACAT ID.

**ACAT IA:** These are the largest automated information system (AIS) acquisition programs. There are several cost thresholds for this level, which include AIS programs with single year funding, in all appropriations, in excess of \$32 million; total program cost in excess of \$126 million; or, total life-cycle costs in excess of \$378 million. ACAT IA programs have two subcategories: ACAT IAM and ACAT IAC.

**ACAT II:** These programs do not meet the threshold for ACAT I, but have Research and Development funding in excess of \$140 million or Procurement funding in excess of \$660 million. They are also known as Major Systems. The Marine Corps currently funds three ACAT II programs, including Medium Tactical Vehicle Replacement and Common Aviation Command and Control System 2. It also leads one joint ACAT II

program, which is the Lightweight 155mm Howitzer, and participates in two other joint ACAT II programs.

**ACAT III:** Programs that do not meet the cost threshold for ACAT I or II and involve combat capability are designated ACAT III or IV programs. Within the Marine Corps, the designation generally depends on the level of program management and oversight assigned by Commander, Marine Corps Systems Command. The Marine Corps currently manages more than 20 ACAT III programs, leads approximately 12 joint ACAT III programs, and participates in another 27 joint ACAT III programs. This level includes less-than-major AIS programs.

**ACAT IV:** ACAT programs not otherwise designated ACAT I, IA, II, or III are designated ACAT IV. ACAT IV programs have two subcategories: ACAT IV(T) programs, which require Operational Test and Evaluation, and ACAT IV(M) programs, which do not. The Marine Corps currently manages nearly 90 such programs, and leads or participates in more than 20 joint ACAT IV programs.

## MAJOR ACQUISITION PROGRAMS

# Command Element Programs

### Part 1





# Global Broadcast Service



## Description

The Global Broadcast Service (GBS) system is a receive-only satellite communication system that provides near-world-wide, high-data rate, one-way dissemination of large information products. Examples of these products include classified and unclassified imagery and video, theater message traffic, joint and service-unique news, weather, and morale, welfare, and recreation programming to deployed or garrison forces via small user platforms. GBS will be accessible from 65 degrees north latitude to 65 degrees south latitude.

## Operational Impact

GBS will augment other communications systems and provide a continuous, high-speed, one-way information flow to deployed, mobile, or garrison forces. GBS will support routine operations, training and military exercises, special activities, crisis, situational awareness, weapons targeting, reconnaissance, and the transition to and conduct of opposed operations short of nuclear war. The system will consistently

provide the warfighter with information that allows him to take action inside the decision cycle time of his adversaries

## Program Status

The GBS is a joint program and is currently in a pre-Milestone C status. The Marine Corps currently possesses 13 Low Rate Initial Production (LRIP) GBS receiver suites provided by the Joint Program Office. All three Marine Expeditionary Forces have at least one GBS receive suite and are using the technology to support exercises and operations within their respective areas of operation. These receive suites are also being used for test and evaluation purposes to assist in defining manpower, training, and concept of operations issues.

The program is currently conducting a “technology refresh” to upgrade the receive suites with an Internet Protocol (IP)-based, commercial off-the-shelf architecture. This new architecture will provide users with a smaller, lighter, more agile system. The first developmental/operational test on the IP-based system occurred in December 2003. The second test took place in March 2004. The third test took place in July 2004. Upon successful testing, the Marine Corps will proceed with its own LRIP procurement decision for eight terminals. A joint-Milestone C decision is scheduled for FY 2006 based on subsequent testing. The approved acquisition objective for GBS is 81.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	8	40
<b>Developer/Manufacturer:</b>	Raytheon, Reston, VA	

# Global Command and Control System

## Description

The Global Command and Control System (GCCS) is a comprehensive, world-wide classified and unclassified network, which provides the National Command Center (NCC), Joint Staff, combatant and functional Unified Commands, services, defense agencies, Joint Task Forces (JTFs), and their service components with information-processing/dissemination capabilities required for the command and control of forces. GCCS encompasses the policies,

procedures, and systems to provide information for data sourcing and monitoring, planning and execution of mobiliza-



tion deployment, employment, sustainment, redeployment, and force regeneration activities associated with command and control of military operations. GCCS builds on the technical developments, products, procedures, and integration strategies employed to take advantage of lessons learned. The GCCS provides the warfighter with one common, interoperable picture on any computer hardware platform that is plugged into a single world-wide web network.

## Operational Impact

GCCS is used over the spectrum of command from the Secretary of Defense to the operational level, giving the JTF commander the means to exercise authority and direct assigned/attached forces in the accomplishment of the mission. GCCS allows the Marine Corps component to share information with service-specific and

JTF elements. GCCS provides total battlespace information to the warrior. GCCS supports decision-making processes in environments that may or may not provide all necessary information. The major functional areas impacted by GCCS are force generation, force deployment/redeployment, planning functions (deliberate planning and crisis action planning and execution), force sustainment, force readiness, intelligence, situational awareness, force employment, and force protection.

## Program Status

GCCS is a joint mandated, C2 automated data processing “system-of-systems,” which provides Command and Control, Communications, and Computers and Intelligence capabilities for Marine Corps commands participating in joint planning and execution. GCCS consists of common hardware, a common operating system, common software, and C2 applications. The C2 applications include joint segments that are developed and maintained by the Defense Information Systems Agency under the sponsorship of the Joint Staff; Executive Agent segments that are developed and maintained by one of the military services under the sponsorship of the Joint Staff; and, service mission specific segments that are developed and maintained by each service under the sponsorship of that service’s organization.

Procurement Profile:		FY 05	FY 06
Quantity:	Client	0	0
	Server	0	0

## Developer/Manufacturer:

Clients: IBM, White Plains, NY

Servers: Sun Microsystems, Santa Clara, CA



# Global Command and Control Systems-Integrated Imagery and Intelligence (I3) Initiative

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## Description

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The Global Command and Control Systems-Integrated Imagery and Intelligence (I3) Initiative, (GCCS-I3), is a joint program in which the Marine Corps participates. The program enhances operational commanders' intelligence-

situation awareness and track management. It uses a standard set of integrated tools and services to maximize commonality and interoperability across the tactical, theater, and national communities. The GCCS-I3 operates in joint and service-specific battlespace, and is interoperable, transportable, and compliant with the Common Operating Environment (COE).

## Operational Impact

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The GCCS-I3 is the core software for the Intelligence Analysis System Family of Systems, which is the senior system in the System-of-Systems concept. The GCCS-I3 Initiative works to ensure that the systems' software is interoperable with the Marine Corps communication and data transmission systems. Several Marine Corps Intelligence Systems utilize GCCS-I3 as their core software and/or individual segments as major components of their software baseline, including:

- Technical Control and Analysis Center (TCAC);
- Topographic Production Capability (TPC);
- Tactical Exploitation Group (TEG);
- Counter Intelligence/Human Intelligence (HUMINT) Equipment Program (CIHEP);

Tactical Combat Operations (TCO);

Tactical Remote Sensor System (TRSS);

Joint Surveillance Target Attack Radar System (JSTARS);

Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES); and,

Advanced Field Artillery Tactical Data System (AFATDS).

## Program Status

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The GCCS-I3 Initiative has several long- and short-term goals to enhance the interoperability and procurement decisions for Marine Corps intelligence systems. In the long-term, this program seeks to achieve an integrated, fully interoperable Marine Corps Intelligence System-of-Systems. During the near-term, the program seeks to establish a process, and a corresponding set of procedures, designed to allow the Marine Corps to make informed procurement decisions in its efforts toward achieving the long-term goal. The GCCS-I3 effort has four mission areas: Administration and Infrastructure Support; Program Manager-Level Configuration Management Processes and Functions; Science and Technology Engineering Support; and, Integration Support Team.

## Procurement Profile

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This program is funded through Research and Development (R&D) and Operations and Maintenance (O&M) budgets.

## Developer/Manufacturer

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The Joint GCCS-I3 Program Office defines and validates various operational requirements of the GCCS-I3.

# Intelligence Broadcast Receivers



## Description

The Joint Tactical Terminal (JTT) and the Embedded National Tactical Receiver (ENTR) are part of the Intelligence Broadcast Receiver (IBR) Family, which receives and processes national- and theater-level, near-real-time intelligence information simultaneously from several sources. These include the Intelligence Broadcast Service (IBS) Simplex (Legacy-TDDS), IBS Interactive (Legacy-TIBS), IBS Line of Sight (Legacy-TRIXS), and Tactical Data Information Exchange Service B (TADIXS B) systems.

## Operational Impact

The JTT capability is directly tied to the Congressionally mandated IBS initiative

that will combine the current four legacy intelligence broadcasts into a single broadcast. The IBR Family of Receivers is the sole source that will provide interface to the new IBS broadcast information. When IBS is implemented, legacy terminal systems will not be able to receive IBS data. Access to intelligence information will not be possible without the JTT and ENTR, and other IBR solutions.

## Program Status

Approved Acquisition Objective is 235 IBR systems (25 JTTs and 210 ENTRs). JTT procurement of 25 systems is complete. JTT fielding began in fourth quarter FY 2004. Procurement of 210 ENTRs will be fulfilled during FY 2005-2007. Developmental testing for ENTR began during third quarter FY 2004.

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity (ENTR):</b>	66	35
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**Developer/Manufacturer:**

JTT: Raytheon C3S Radios/Terminals,  
St. Petersburg, FL;

ENTR: L3 Communications, Conic Division,  
San Diego, CA



# Joint Enhanced Core Communication System

## Description

The Joint Enhanced Core Communication System (JECCS) supports a “first in” communications capability in support of a Marine Air-Ground Task Force or other missions in support of Joint, Coalition and Interagency, e.g., State Department, Department of Energy, United Nations, Red Cross, etc., organizations operating with Marine forces. The JECCS is in part a material solution that ties multiple capabilities together into a closely integrated First In Command and Control System (FICCS). The FICCS is comprised of three functional areas, including Transmission, Network Management, and Operational Facility. The JECCS fulfills the network management requirements of FICCS and serves as a hub for the net-centric architecture by providing the following GIG-enabled services:

- Defense Switched Network (DSN);
- Defense RED Switch Network (DRSN);
- Secure Internet Protocol Network (SIPRNET);
- Non-secure Internet Protocol Network (NIPRNET);
- CENTRIXS (Combined Enterprise Regional Information Exchange System);
- Joint Worldwide Intelligence Communications System (JWICS); and,
- DISN Video Services-Global (DVS-G) or Video Teleconference (VTC).

## Operational Impact

Current MAGTF communications, at this level, are achieved using the Joint Task Force Enabler suite of equipment. The JECCS will replace this suite with a fully



integrated, sustainable voice and data communications package. By integrating all required initial Command, Control, Communications, Computers, and Intelligence (C4I) connectivity equipment onto a single High Mobility Multipurpose Wheeled Vehicle (HMMWV), JECCS will decrease field setup time, while increasing MAGTF communications capability, flexibility, and mobility.

## Program Status

The Program was granted a full rate production decision in March 2004. and has issued a delivery order for the remaining (11) systems. These systems will incorporate Block II upgrades. Full operational capability is scheduled for third quarter FY 2006.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	11	3
<b>Developer/Manufacturer:</b>		
<b>Prime Contractor:</b>	EDO/Darlington, Inc.,	
	Wando, SC	

# Joint Network Management System

## Description

The Joint Network Management System (JNMS) is a mandated communications planning and network management tool for the combatant commander, Joint Task Force (JTF) commander, and JTF service components. It is used for high-level communications war planning; detailed planning and engineering; network management, monitoring, control and reconfiguration; spectrum planning; and, the management and security of systems and networks supporting joint operations. JNMS is a joint Acquisition Category III program. The Milestone Decision Authority (MDA) is the Program Executive Officer, Command, Control, and Communications, Tactical (PEO C3T). JNMS includes the Marine Corps System Planning Engineering and Evaluation Device (SPEED), as well as COTS software, GOTS software, and Developed software. Both JNMS and SPEED roll up under the Marine Corps Network Planning and Management (NPM) Portfolio in FY 06.

## Operational Impact

Personnel manning the Systems Control department within each command component will employ the JNMS. Without JNMS, the Marine Corps will not have the mandated communications tool to plan, manage, and collaborate with the joint community during JTF operations and exercises.

## Program Status

JNMS has a Milestone C and Limited Rate Initial Production Decision. A Full Rate Production Decision is planned for first quarter FY 06. Marine Corps commands supporting the first units to be equipped will receive JNMS with their service counterparts.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	10	11
<b>Developer/Manufacturer:</b>	Science Applications International Corp. (SAIC), San Diego, CA	



# Tactical Exploitation Group

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## Description

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The Tactical Exploitation Group (TEG) is the primary tactical imagery exploitation system in the Marine Corps. The TEG disseminates exploitation reports and secondary imagery products to the Marine Expeditionary Force (MEF) commander and subordinate commanders for tactical operations, strike planning, precision targeting, detection and location of targets of opportunity, and combat damage assessment for re-strike planning and intelligence assessment. The TEG employs commercial off-the-shelf, government off-the-shelf, and non-developmental item computer hardware and software to enable rapid upgrades and maintain commonality and interoperability with other Marine Corps and joint intelligence and imagery systems.

## Operational Impact

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The TEG provides the capability to receive, process, store, exploit, and disseminate electro-optical (EO) and infrared imagery (IR) from the F/A-18D (RC) Advanced Tactical Airborne Reconnaissance System (ATARS) and synthetic aperture radar (SAR) imagery from the F/A-18D (RC) radar. The TEG can also receive EO, IR, and SAR imagery from theater resources, such as the U-2 Advanced Synthetic Aperture Radar System-2 (ASARS-2) and Global Hawk Unmanned Aerial Vehicle (UAV). The TEG can also receive, store, exploit, and disseminate imagery from theater and national input segments.

## Program Status

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Two of three TEG-M systems have been delivered (I MEF and II MEF). The third TEG-M (intended for III MEF) is currently in use as the demonstration platform



for a formal Developmental / Operational Test required for Milestone determination. Anticipated delivery of the third TEG-M, anticipated for III MEF is in fourth quarter FY 2005. Marine Corps Systems Command is implementing an Incremental Development Plan (IDP) effort for TEG. These improvements, which began in FY 2002, are grouped as incremental upgrades and will occur on alternate years. Incremental Upgrade 2 development was implemented in FY 2003.

## Procurement Profile:

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During FY 2005, the Marine Corps will complete TEG formal testing as a precursor to Milestone C, and seek a subsequent Fielding Decision. Migration plans to facilitate the transition of the current TEG capability to net-centric architectures are being finalized.

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### Developer/Manufacturer:

#### Prime Hardware Integrator:

Space and Naval Warfare Systems Center,  
Charleston, SC.

#### Software Integrator:

Northrop Grumman, Linthicum, MD

#### Common Data Link:

L3 Communications, Salt Lake City, UT

# Joint Tactical Radio System



## Description

The Joint Tactical Radio System (JTRS) is a family of joint, multi-channel, multi-mode, reprogrammable radio systems. JTRS provides high-capacity, line-of-sight and beyond-line-of-sight plain and secure voice, data, and video, while operating in frequency bands from 2 MHz to 2 GHz, with extensions planned in the above-2-GHz ranges. The system ensures network connectivity across the radio-frequency spectrum and supports tactical digital information exchanges. JTRS includes the Wideband Networking Waveform (WNW) that supports communication requirements not achievable with today's systems. Ground versions of JTRS will include vehicle, man-portable, and hand-held radios.

## Operational Impact

Current radio systems provide insufficient data throughput to support exchange of command-and-control and fire-support data. JTRS will provide a wideband networking waveform to support the communication requirements of the warfighter not achievable today. In addition, JTRS multi-band, multi-mode radios will allow for more flexible employment of forces and exchange of information.

## Program Status

JTRS Cluster 1 (ground vehicular radios) and Joint Waveform (Wf) application development entered the System Development

and Demonstration (SDD) phase (Milestone B) after a FY 2002 approval by the Defense Acquisition Executive. The Cluster 1 program was designated as an ACAT ID program. The Joint Wf Development Program approval included permission for the award of development contracts for waveforms and cryptographic algorithms.

JTRS Cluster 2 (JTRS-Enhanced Multi-band Intra-Team Handheld Radio), or MBITR, is the interim JTRS handheld solution. It is being developed as an Engineering Change Proposal to the MBITR program. It will provide a nominal JTRS-compliant capability to the joint warfighter beginning with a production decision during third quarter FY 05.

JTRS Cluster 5 (manpack, handheld, and small form fit radios) entered the SDD phase during second quarter FY 04, being designated an ACAT IC program. Marine requirements are under development for this radio.

## (Funded) Procurement Profile:

Cluster 1 LRIP Models	FY05	FY06
	0	0

## Developer/Manufacturer

### Cluster 1 (ground vehicular/RW)

Prime Contractor: Boeing, Anaheim, CA

### Cluster 2

### (JTRS-Enhanced MBITR Handheld)

Contractor: Thales Systems, Clarksburg, MD

### Cluster 5

### (Handheld, Manpack, Small Form Sit)

Prime Contractor: General Dynamics  
Decision Systems, Scottsdale, AZ



# Marine Air-Ground Task Force Secondary Imagery Dissemination System



## Description

Marine Air-Ground Task Force (MAGTF) Secondary Imagery Dissemination System (SIDS), or MSIDS, consists of three sets of outstation equipment and one set of base station equipment. The outstation includes a basic still-photo digital camera with waterproof case, an advanced still-photo digital camera with fixed and telephoto lenses, a night vision intensifier tube, and a rugged handheld computer with data controller hardware/software. The base station consists of a rugged laptop computer with data controller hardware/software and a printer. The equipment that comprises MSIDS is made up entirely of commercial-off-the-shelf (COTS) equipment.

## Operational Impact

MSIDS provides the only self-contained, hand-held, ground-prospective imagery capability for MAGTF reconnaissance units. This imagery is essential for mission planning and intelligence. Other MAGTF near-real-time imaging systems,

such as unmanned aerial vehicles (UAVs) and F/A-18 Advanced Tactical Airborne Reconnaissance System (ATARS), only provide overhead imagery and cannot capture the detail and ground perspectives available with MSIDS. In asymmetric threat environments-where targets of interest are often small, highly mobile units, such as terrorists or guerilla groups-it is imperative that the MAGTF be able to identify individuals and structures from the ground level. The required detail is not available from overhead sources. Technology insertions via an increment refresh plan will enable reconnaissance Marines equipped with MSIDS to receive needed technological upgrades in a more timely fashion.

## Program Status

The Marine Corps refreshed the entire MSIDS imagery capability during FY 02. The FY 05 refresh will consist of replacing all computers and data controller hardware, and updating the operating software. The FY 06 refresh will consist of replacing current cameras, upgrading the night vision capability, and possibly adding a thermal capability. These efforts are essential to the MSIDS life-cycle support.

Procurement Profile:	FY 05	FY 06
Quantity:		
MSIDS computers	308	0
Personal Data Controllers	308	0
Cameras	0	219
Night Vision/Thermal	0	73

## Developer/Manufacturer

### Systems Integrator:

Integrity Data Inc. (IDI), Colorado Springs, CO

# Tactical Data Network



## Description

The Tactical Data Network (TDN) augments the existing Marine Air-Ground Task Force (MAGTF) communications infrastructure by forming the communications backbone for MAGTF tactical data systems and the Defense Messaging System (DMS). The TDN system consists of a network of gateways and servers interconnected with one another and their subscribers via a combination of common-user, long-haul transmission systems, along with local area networks (LANs) and switched telephone systems.

## Operational Impact

TDN provides its subscribers with basic data transfer and switching services; access to strategic, supporting establishment, joint, and other-service component tactical data networks; network management capabilities; and, value-added services, such as message handling, directory services, file sharing, and terminal emulation support. It will provide Internet Protocol connectivity for tactical data systems and the DMS. Without TDN, units will only be able to establish ad hoc, non-standard local area

networks. They will be forced to connect into the communications infrastructure by any means available, making it difficult to support them technically and logistically.

## Program Status

The Marine Corps has fielded 31 TDN gateway and 462 TDN Data Distribution Systems (DDS). An additional 30 TDN DDS are planned for use at the Marine Corps Communications and Electronics School. TDN Block I is complete.

A Block II modification and upgrade of the TDN Data Distribution System that provides backup and redundancy was fielded in FY 2004. A TDN

Block III modification/upgrade, Information Assurance (IA) integration, and secure wireless LAN is planned for FY 07 and FY 08.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0*	40

\* Upgrades to existing systems in lieu of new procurement.

## Developer/Manufacturer:

General Dynamics Communication Systems, Taunton, MA



# Unit Operations Center



## Description

The Unit Operations Center (UOC) consists of two elements-the Command Operations Center (COC) and Command Center (CC). The COC provides a centralized facility that hosts command-and-control equipment and spaces for all elements of a Marine Air-Ground Task Force (MAGTF) command element. The COC provides tent, power, air conditioning, cabling, local area network (LAN), processing, and video display systems. The COC will host 18 tactical data systems (TDSs) software. Designed to enable the interaction and flow of information between staff members, the COC is scalable to support command echelons at battalion and above.

## Operational Impact

Currently, the Marine Corps operates varied command-and-control equipment suites. The UOC program standardizes these suites and improves system shelter and transportability, digital capabilities, power generation, and integration, thereby, improving MAGTF command and control. Operational capabilities are currently being utilized on the ground in Operation Iraqi Freedom II (OIF-II). Eight UOC systems are currently in the country.

## Program Status

The UOC program is currently in the Production and Deployment phase of Milestone C, with a Low-Rate Initial Production decision of 15 systems. The UOC acquisition strategy focuses on the procurement of the funded COC portion of the program, and will follow an evolutionary spiral development approach. Due to changes in priority based on OIF-II needs, fielding was initiated to applicable portions of the Air Combat Element and the Ground Combat Element. Future fielding will include more to both of these elements, as well as the Command Element and the Combat Service Support Element.

An Urgent Universal Need Statement for 32 COCs was submitted by I MEF and has been approved by the MROC. These 32 systems will be deployed in support of OIF efforts. Additionally, the program office has received a procurement decision for 10 Spiral I systems to be procured in FY 05. Five of the Spiral I systems will support an operational assessment at the beginning of FY 06, training, and other program efforts. Five of the Spiral I systems will be fielded to CONUS units to support requirements definition in support of MAGTF Command and Control.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	10	0
<b>Developer/Manufacturer:</b>	General Dynamics, C4 Systems, Scottsdale, AZ	

# Lightweight Technical Fire Direction System



## Description

The Lightweight Technical Fire Direction System (LWTFDS) provides the artillery firing battery with the capability to automate technical fire direction, while in a degraded or moving status, providing a second check required for safe and accurate fires. Additionally, it increases the responsiveness for special missions, such as “hip shoots” and artillery raids. The LWTFDS automates survey and meteorological functions performed by the artillery community. It utilizes the NATO Artillery Ballistic Kernel (NABK) to compute the technical firing solution for the battery.

## Operational Impact

The LWTFDS is the material replacement for the Back-up Computer System (BUCS) originally fielded in the early 1980s. Falling under the cognizance of the Advanced Field Artillery Tactical Data System (AFATDS), the LWTFDS gives the battery the ability to compute data when the AFATDS is not operational. This occurs during movements, raids, and periods of degraded operation. The LWTFDS will also replace the Back-up Computer System



Replacement (BUCS-R), which was an interim device for survey functionality fielded in the late 1990s, until the LWTFDS became available.

## Program Status

As part of the AFATDS program, LWTFDS does not have an individual acquisition category or milestone. The LWTFDS will be fielded to all artillery batteries, battalion survey sections, and the Marine Corps artillery training detachment at Fort Sill, OK, starting in FY 2005. Initial versions will provide basic functionality. Follow-on software versions will incorporate interoperability with AFATDS, entry devices, and a Gun Display Unit.

**Procurement Profile:** FY 05 FY 06

**Quantity:** 97 0

### Developer/Manufacturer:

**LWTFDS Software Developer:**

Raytheon Systems Company, Fort Wayne, IN

**LWTFDS Hardware Developer:**

Talla-Tech, Tallahassee, FL

### LWTFDS Integrator:

General Dynamics, Taunton, MA



# Command and Control Personal Computer

## Description

Command and Control Personal Computer (C2PC) is a Windows-based client software application designed for Marine Air-Ground Task Force (MAGTF) tactical data systems. When connected to a network, C2PC exchanges position tactical track data with Unix based Tactical Data Base Management (TDBM) Systems such as Tactical Combat Operations system (TCO), Intelligence Analysis System (IAS), and Global Command and Control System (GCCS) and provides a complete geographically based situational awareness capability, including the capability to display the GCCS Common Operational Picture (COP) data.

Under the Family of Interoperable Operating Pictures initiative, C2PC is designated as the Joint Tactical COP Workstation, and the Marine Corps is the Executive Agent. The Marine Corps is the sole developer for C2PC, providing software upgrades, maintenance, technical support, and lifecycle management.

## Operational Impact

C2PC is provides a framework for enhanced systems interoperability and commonality between MAGTF Command, Control, Communications, Computers, Intelligence Surveillance, and Reconnaissance (C4ISR) systems, and serves as an integration mechanism with Joint C4ISR systems of record (SOR) on a common map display. C2PC is a single, ground Blue Force tracking C2 capability between the Marine Corps and the U.S. Army, and provides interoperability in the areas of intelligence, maneuver, logistics, fire support, and targeting between the Marine Corps, other services, and Joint Task Force (JTF) headquarters. C2PC is resident on the following SOR:

Expeditionary Warfighting Vehicle (EFV);  
Intelligence Analysis System (IAS)  
Family of Systems;  
Tactical Combat Operations (TCO);  
Joint Warning and Reporting Network (JWARN);  
Target Location, Designation and Hand-Off System (TLDHS);  
Tactical Remote Sensor System (TRSS);  
Tactical Exploitation Group (TEG);  
M-DACT; and,  
GCCS-J.

C2PC features include a robust TrackPlot, Routes planning, and Overlay Edit capability, as well as the ability to embed ActiveX objects (MS Word, MS PowerPoint, sound files, etc.) into the tactical map display. In a standalone mode (not connected to a network), C2PC operators can produce operational graphics and input track data, and upon reconnection to a networked TDBM, track data will be synchronized. With this electronic connectivity, C2PC becomes a powerful tool for the commander by providing a common tactical picture throughout his command. C2PC is deployed from company level to Marine Expeditionary Force level on various types of hardware within the Marine Corps, and it is deployed by all the other services in various operational and tactical environments to facilitate command and control.

## Program Status

The C2PC is an Acquisition Category IV-M program that is post Milestone C.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	N/A	N/A
<b>Developer/Manufacturer:</b>	Northrop Grumman Mission Systems, San Diego, CA	

# Intelligence Analysis System Family of Systems



## Description

The Intelligence Analysis System (IAS) Family of Systems (FoS) uses a three-tiered approach for receiving, parsing, analyzing, and disseminating fused all-source intelligence data. The first tier, the Marine Expeditionary Force (MEF) IAS, is a mobile system that supports the MEF Command Element. The second tier, the Intelligence Operations Server (IOSv2), is a team portable system designed to support the Intelligence Operations of the Major Subordinate Commands (MSC). The third tier, the Intelligence Operations Work-station (IOW), serves as the intelligence link for the battalion and squadron commands to higher headquarters or as a stand-alone system.

## Operational Impact

Fielding of the MEF IAS has provided Marine Air-Ground Task Force (MAGTF) commanders with a mobile, all-source, intelligence data fusion and dissemination capability. The IOSv2 gives the commander at the Major Subordinate Command (MSC), Marine Expeditionary Unit (MEU), regiment, and group commands access to time-sensitive intelligence data that is crucial to the decision making process and the Intelligence Preparation of

the Battlefield (IPB). Without the IOSv2, this ability would be greatly degraded. The IOW is the link to intelligence data for the battalion and squadron level of commands, using client/server technology for a “reach back” capability to higher commands for intelligence information updates. The IOW can also function as a stand-alone workstation and can operate with certain limitations in a disconnected environment.

## Program Status

The MEF IAS is currently in the post production/fielding phase of the acquisition process. All systems have been fielded to the operational forces, and receiving Marine Reserve units. The IOW was refreshed in FY 04.

## Procurement Profile

The IAS FoS executes periodic hardware and peripheral refreshes as per the PM NMCI/IT refresh schedule. One major software fielding and one service pack is fielded per Fiscal Year.

## Developer/Manufacturer:

**Hardware components (all three tiers):**

Commercial-off-the-shelf (COTS) and non-developmental items (NDI)

**Software components (all three tiers):**

Various COTS and government-off-the-shelf (GOTS) developers

**Key GOTS software developers:**

Northrop Grumman, Information Technologies, Philadelphia, PA

Chi Systems, San Diego, CA

Titan Systems Corporation, Virginia Beach, VA

**System integration of software to hardware**

**suite:** Space and Naval Warfare System

Command (SPAWAR), Charleston, SC



# Joint Surveillance Target Attack Radar System, Common Ground Station

## Description

The Joint Surveillance Target Attack Radar System (JSTARS) is a long-range, air-to-ground surveillance system comprised of an airborne element and a ground element. JSTARS data will be sent across the Marine Air-Ground Task Force (MAGTF) Command, Control, Communications, Computers, and Intelligence (C4I) network through existing and evolving tactical data networks. The CGS is also capable of receiving and fusing imagery data from unmanned aerial vehicles (UAVs) directly onto JSTARS data, providing an enhanced collection-processing capability.

The CGS consists of high-end workstations, mission and support vehicle trailers, which are both M1097A2 Heavy-Variant High Mobility Multipurpose Wheeled Vehicles (H-HMMWVs), and two M-1116A3 variant utility trailers. The mission vehicle trailer will be mounted with a 10-kw Mobile Electric Power (MEP) 803A generator, a single switch box, and ancillary equipment. The support vehicle trailer will carry additional ancillary equipment. The mission vehicle H-HMMWV is mounted with a shelter of the same form, fit, and function as the Lightweight Multipurpose Shelter (LMS) that houses the mission-essential equipment. The CGS is self-contained and provides storage and transportability of all mission equipment, support equipment, and six crew members. The Joint Services Workstation (JSWS) is a transit case system, containing the same hardware and software as the CGS, except for the communication hardware (but does have an organic Joint Tactical Terminal (JTT)) and SCDL. When it has the associated communication

hardware and/or SCDL it performs in the same manner as the CGS.

## Operational Impact

The JSTARS CGS provides the supported commander, afloat and ashore, with near-real-time (NRT) access to MTI, FTI, and SAR data from the JSTARS collection platform. MTI, FTI, and SAR data will be accessible at all echelons of command within the MAGTF. The JSTARS CGS is a MEF-level asset, which is deployed as part of the MAGTF G-2 and operated by Marines from the Intelligence Battalion, providing the MAGTF commander with a detailed image of the battlefield.

## Program Status

The JSTARS is currently in a post-Milestone C. The Marine Corps currently possesses three JSTARS CGSs and five JSWSs.

The program is currently conducting two levels of efforts: the maintenance and upgrade of the current JSTARS CGSs and JSWSs, and the research and development of future MTI collection capabilities.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>		
<b>Prime Hardware Integrator:</b>	General Dynamics Command, Control, Communications and Computers (C4) Systems (GDC4S), Scottsdale, AZ	
<b>Software Integrators:</b>	GDC4S, Scottsdale, AZ; Harris Systems, Melbourne, FL	
<b>SCDL:</b>	Cubic Defense Systems, San Diego, CA	

# Tactical Combat Operations System



## Description

The Tactical Combat Operations (TCO) System is comprised of Marine Air-Ground Task Force (MAGTF) Software Baseline, or MSBL, hosted on a suite of tactical computer hardware, which is built around a computer Intelligence Operations Server v.1 (IOS v.1) and computer Intelligence Operations Workstations (IOWs). TCO uses commercial-off-the-shelf (COTS) servers and workstations to provide commanders the automation to receive, fuse, select, and display information from many sources, and disseminate selected information throughout the battlefield.

## Operational Impact

TCO is the principle tool within the MAGTF for situational awareness through the distribution of a Common Tactical Picture. It is also the point of entry for the Common Operational Picture (COP), which is input from the Global Command

and Control System (GCCS). The TCO System is used to display maps and friendly/enemy unit locations, and to develop, display, and transmit overlays and plans of intended movement and maneuver. TCO attributes include: automated message processing, mission planning, development and dissemination of operational orders and overlays, display of current friendly and enemy situations, display of tactical control measures, and interface with local and wide area networks. TCO is located in the MAGTF Combat Operation Centers from the Marine Expeditionary Force through battalion level.

## Program Status

The TCO project office completed a refresh cycle for the tactical IOW in FY 04, distributing 525 IOW commercial laptops (IBM model T40p) throughout the operating forces and designated supporting establishments. In FY 05, the TCO project office will begin fielding the new IOS v.1 Sun Netra 240 servers, which were procured during fourth quarter FY 04.

Procurement Profile:	FY 05	FY 06
Quantity: IOS v.1	0	0
IOW	0	0

## Developer/Manufacturer

IOS v.1: Sun Microsystems, Santa Clara, CA  
IOW: IBM



# Tactical Remote Sensor Systems-Product Improvement Program

## Description

Tactical Remote Sensor Systems (TRSS) provide all-weather remote monitoring of activity within and near a given objective area. The TRSS-Product Improvement Program (PIP) is an incremental upgrade to selected portions of these systems. The TRSS-PIP will use state-of-the-art seismic, infrared, magnetic, acoustic, and imaging sensors to autonomously classify, identify, and report threat activity, which is active in their detection range according to operator selectable reporting criteria. Major components of the TRSS-PIP are Unattended Ground Miniaturized Sensors (UGMS) that are hand-emplaced, and Advanced Air-Delivered Sensors (AADS) that are fixed-wing emplaced. These systems will upgrade the current fielded baseline and provide a Corps-wide capability for unattended ground surveillance that can be tailored to the operational requirement. TRSS is employed by the Marine Corps' Ground Sensor Platoons (GSPs).

## Operational Impact

Initiated in 1991, TRSS replaced the Vietnam-era REMBASS system with

upgraded electronics, sensors, and relays, which were reduced in weight and size, and monitoring devices that give the GSP extra capabilities without changing its operational profile.

## Program Status

TRSS achieved initial operational capability in 1992 and is currently 100 percent fielded.

<b>Procurement Profile:</b>	<b>FY 05</b>	<b>FY 06</b>
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**Quantity:**

Thermal Imagers	155	37
Electro-optical Imagers	155	37
Target		
Recognition Sensors	68	350
Advanced Air		
Delivered Sensors	80	145
Satellite		
Communications Modules	100	0

**Developer/Manufacturer**

NOVA Engineering, Inc., Cincinnati, OH  
Textron Systems, Wilmington, MA  
Ocean Systems Engineering Corporation (OSEC), Carlsbad, CA

MAJOR ACQUISITION PROGRAMS

# Ground Combat Element Programs

Part 2





# M249 Squad Automatic Weapon

## Description

The M249 Squad Automatic Weapon (SAW) program seeks to replace the current inventory of SAWs with new, upgraded ones. The SAW was fielded in 1985 and replaced the M16A1 rifle as the automatic rifle in the Marine fire team and rifle squad. It remains a critical source of firepower for Marine Corps units executing ground combat missions.

## Operational Impact

Acquisition of the SAW, a true light-weight machinegun, significantly increased the firepower of the basic Marine Corps ground combat unit, the four-Marine fire team. The service life of the currently fielded SAW has been exceeded. If this inventory is not replaced, tangible combat power of Marine ground units will degrade, which will directly affect the Marine Corps' ability to meet both operational and maintenance readiness. Modifications to the original design incorporate years of field experience, ensuring that this acquisition adds technological advances in addition to



reliability improvements for Marines executing ground combat missions.

## Program Status

The Marine Corps is working with the U.S. Army within an existing SAW procurement contract.

<b>Procurement Profile:</b>	<b>FY 05</b>	<b>FY 06</b>
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<b>Quantity:</b>	447	478
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**Developer/Manufacturer**

FN Manufacturing, Inc., Columbia, SC

# Modular Weapon System



## Description

The Modular Weapon System (MWS) consists of an M16A4 rifle and an M4 carbine version, which are modified M16A2 service rifles. An M1913 Rail Adapter System (RAS) replaces the upper hand guards and incorporates a removable rear-carrying handle. The rail adapter system and modified hand guards allow for the mounting of various accessories, such as a modified M203 launching system, high intensity flashlights, and infrared (IR) laser target designators, as well as optics. The MWS M4 carbine variant will be selectively fielded to Marines requiring shorter carbine versions of the MWS.

## Operational Impact

Use of the MWS will result in a significant improvement in the ability to mount various accessories and will improve the accuracy, target detection, day and night engagement capabilities, and the maintainability of the M16 family of rifles.

## Program Status

Fielding of the MWS began in FY 2003 and continues through FY 2007, for a total of 59,479 M16A4 and 10,407 M4 weapons.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	9,050	13,384

## Developer/Manufacturer

Colt Manufacturing Company, Inc.,  
Hartford, CT  
Fabrique National Military Industries,  
Columbia, SC



# Safety Boats

## Description

This program will provide a watercraft from which personnel can monitor small craft training. The craft will possess integrated communication and navigational systems to provide its crew the necessary situational awareness to respond to and aid disabled craft and injured personnel. The craft provides easy access from the water to its deck for combat-laden casualties. It also has sufficient deck space for the treatment of casualties during transport, or for the surge transport of passengers in the event a raid craft becomes disabled. Its 30-plus-knot speed also permits the rapid evacuation of casualties that have sustained life-threatening injuries.

## Operational Impact

Reconnaissance units and infantry boat companies are required to focus on training of an amphibious nature. A safety boat and crew must be present when these units are

conducting various combinations of small boat training, surface swims, and combatant diving, to properly supervise the safety of this training or to expeditiously MedEvac an injured Marine or diver to a medical facility. Historically, when the craft used for the safety boat mission have not been large or fast enough, units often purchased non-standard boats to meet their requirements. The Raid/Open Water Safety Boat will be provided to every reconnaissance unit.

## Program Status

The Marine Corps purchased three concept evaluation boats in FY 2002. Procurement funding for the crafts has been deferred to FY 2006. Initial operational capability is planned for FY 2006, with full operational capability a year later.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	24
<b>Developer/Manufacturer:</b>	TBD	

# Marine Corps Sniper Systems

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## Description

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Marine Corps Sniper Systems consist of three primary weapon systems: the M40A3 Sniper Rifle, the Designated Marksman Rifle (DMR), and the M82A3 Special Application Scoped Rifle (SASR). The M40A3 is a bolt-action, extended range, anti-personnel weapon used for precision engagement of enemy targets out to 1,000 yards. The DMR is a semi-automatic precision anti-personnel weapon designed primarily for security and anti-terrorism missions. The SASR is a semi-automatic, extended range, anti-material weapon designed to fire a variety of .50 caliber ammunition at enemy targets up to 1,600 meters.

## Operational Impact

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Marine Corps Sniper Systems allow Marine snipers and other designated marksman to engage enemy targets with precision direct fires at a variety of ranges in a variety of battlefield environments and scenarios.



## Program Status

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All weapon systems are currently fielded. Additional quantities of each system will potentially be procured if the Marine Corps end-strength is increased and new infantry units are added.

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## Procurement Profile:

**Quantity:** N/A

## Developer/Manufacturer

**M40A3 and DMR:** Weapons Training Battalion, Precision Weapons Facility, Quantico, VA

**SASR:** Barrett Firearms, Murfreesboro, TN



# Thermal Weapon Sight

## Description

The Thermal Weapon Sight (TWS) is a lightweight, low-power, high-performance, forward-looking infrared device that will augment existing crew-served night vision sights. TWS does not rely on visible light for operation and is virtually unaffected by weather and obscurants (both natural and manmade). The TWS operates by discerning the temperature variation between targets and their background. It is completely passive and, although designed for target detection and engagement with Marine Corps crew-served weapons, can be used for all-weather surveillance.



## Operational Impact

The 24-hour capability of the TWS significantly enhances the Marine Corps day- and night-fighting capability through improved target detection and engagement. The system can “see” through obscurants (such as sand, dust, or fog) that impair

sighting systems operating in the visible and near-visible spectrum. The TWS has the ability to acquire targets under most atmospheric conditions at ranges, which are comparable to the maximum effective ranges of the weapon system with which it is employed.

## Program Status

The U.S. Army—the lead service for the TWS program—and the Marine Corps successfully completed separate operational test and evaluations in 2000 and 2001, which led to a procurement decision in July 2001. The Marine Corps will exercise an option on the Omnibus contract and procure 3,542 medium TWSs, or MTWSs, and 1,793 heavy TWS, or HTWSs. As of May 2004, 2,123 MTWSs have been fielded to meet Fleet Marine Force (FMF) requirements.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	900	1,000
<b>Developer/Manufacturer:</b>	Raytheon Systems Company, Dallas, TX	

# MAGTF Expeditionary Family of Fighting Vehicles



## Description

The Marine Air-Ground Task Force (MAGTF) Expeditionary Family of Fighting Vehicles, or MEFFV, is an acquisition initiative designed to support joint operations via Expeditionary Maneuver Warfare (EMW). Currently envisioned as a replacement for the capabilities provided by the Marine Corps’ Family of Light Armor Vehicles (LAVs) and M1A1 main battle tanks in the 2015-2020 timeframe, the Marine Corps is also evaluating potential capability opportunities achievable through network centricity similar to that being pursued for the Army’s Future Combat System (FCS).

## Operational Impact

The primary goal for developing MEFFV is to facilitate EMW capability enhancements for MAGTFs in the next decade and beyond. Consideration for such capability enhancements shall include increasing the operational reach and tactical flexibility of MAGTFs, and increasing the MAGTFs’ ability to support and sustain

the Ground Combat Element (GCE) through lower vehicular weights, high component commonality, and high fuel efficiency. Vehicle design and configuration will be specifically driven to be compatible with Seabasing principles. The MEFFV system shall be compatible with joint and multi-national command-and-control architectures.

## Program Status

The MAGTF Expeditionary Family of Fighting Vehicles is currently engaged in pre-Phase A (pre-Milestone A) activities. The Joint Requirements Oversight Council (JROC) has assigned a Joint Potential Designator of “Joint” for FCS and recommended formation of a joint Army/Marine Corps Program Office. The Marine Corps is working with the Army to develop a joint program plan for FCS and MEFFV in order to respond to the JROC and Defense Acquisition Board (DAB) directive. The intent of the joint program plan is to meet both services’ material requirements for future combat systems, reduce life cycle cost of these systems, and enhance interoperability between the services. Near-term funding supports Concept Refinement activities for this family of vehicles. Estimated time period for initial fielding of MEFFV systems is FY 2015-2018.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>	TBD	



# Expeditionary Fighting Vehicle

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## Description

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The Expeditionary Fighting Vehicle (EFV) will be the primary means of tactical mobility for the Marine rifle squad during the conduct of amphibious operations ashore. The EFV is a self-deploying, high-water speed, armored amphibious vehicle capable of transporting Marines from ships located beyond the horizon to inland objectives. The EFV will have the speed and maneuvering capabilities to operate with main battle tanks on land. In addition, the vehicles can use bodies of water, such as oceans, lakes, and rivers, as avenues of approach and maneuver. The EFV is an armored, fully tracked infantry combat vehicle that will be operated and maintained by a crew of three Marines, and have a troop capacity of 17 Marines with their individual combat equipment. The EFV replaces the Assault Amphibious Vehicle (AAV7A1) that was fielded in 1972 and will be more than 35 years old when the EFV is fielded.

## Operational Impact

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The EFV will provide the Marine Corps with increased operational tempo, survivability and lethality throughout the battle area and across the spectrum of operations. The EFV enables the Navy and Marine Corps team to project power from the sea base in a manner that will exploit interven-

ing sea and land terrain, achieve surprise, avoid enemy strengths, and generate never-before-realized operational tempo across war-fighting functions.

## Program Status

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The EFV program is in the Systems Development and Demonstration (SDD) Phase of the acquisition process. During this phase, the program completes the design of the second generation SDD prototypes, and validates the manufacturing and production processes, as well as fabricates and tests the nine SDD prototypes, fabricates the live-fire test vehicle, and finalizes and implements the life cycle management concept. The Low Rate Initial Production decision (Milestone C) is currently scheduled for September 2006. The current acquisition objective is to produce 1,013 EFVs, with the Initial Operational Capability scheduled for 2010 and full operational capability scheduled for 2020.

Eight of the second-generation prototypes, including six EFVP1 (personnel variant) and one EFVC1 (command and control variant), have been undergoing developmental testing in preparation for the Milestone C Operational Assessment planned for 2006. The Joint Services Manufacturing Center in Lima, OH, has been chosen as the production and assembly site for the EFV.

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## Procurement Profile:

Low Rate Initial Production is scheduled to begin FY 2007 with Full Rate Production to begin FY 2011.

## Developer/Manufacturer:

General Dynamics Amphibious Systems,  
Woodbridge, VA

# M1A1 Firepower Enhancement Program



## Description

The Firepower Enhancement Program (FEP) is a suite of upgrades for the Marine Corps' M1A1 main battle tank. It will include, at a minimum, a second-generation thermal sight and a far-target location (FTL) capability. The advanced thermal sight consists of infrared optics, an infrared focal plane array, associated analog and digital electronics, display, brackets, and cables. The FTL system consists of a North Finding Module (NFM), bracket, cables, and inputs from the existing laser rangefinder and Precision Lightweight Global Positioning System Receiver (PLGR). The FTL system is a new capability for the Marine Corps M1A1 tank and will provide the tank crew with accurate target location (less than 50 meters Circular Error Probability (CEP) out to 8,000 meters) within two seconds after lasing the target. The FTL solution is determined by utilizing the inputs of the laser rangefinder, PLGR, and NFM.

## Operational Impact

As part of a Marine Air-Ground Task Force (MAGTF), the M1A1 provides maneuver and armor-protected firepower to the Ground Combat Element. As the mobility and survivability of threat systems improve, the M1A1 must increase the speed and accuracy with which it acquires and engages targets. The M1A1 FEP will provide thermal imaging and FTL capability that will overmatch threat sensor performance, thereby improving the ability of Marine Corps tank crews to engage and defeat an enemy at extended ranges. The M1A1 FEP will provide for increased target detection, recognition, identification, and FTL capabilities during day and night operations, through smoke, fog, or other battle-field obscurants.

## Program Status

The Commanding General, Marine Corps Systems Command, approved the program for entry into Milestone C.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	4	148
<b>Developer/Manufacturer:</b>	Raytheon Company, McKinney, Texas	



# Assault Amphibious Vehicle Reliability, Availability, Maintainability/Rebuild to Standard Program



## Description

The Assault Amphibious Vehicle (AAV) Reliability, Availability, Maintainability/Rebuild to Standard (RAM/RS) acquisition program improves the Marine Corps' ability to logistically support the AAV Family of Vehicles (AAV FOV). The program replaces the AAV's suspension system with one derived from the U.S. Army's Bradley Fighting Vehicle. A 525-horsepower Cummins V903 engine, also derived from the Bradley, replaces the current 400-horsepower engine. The HS-400 transmission is rebuilt with modifications, including a new torque converter, to change it to the HS-525 configuration. The remainder of the vehicle is rebuilt to original specifications.

## Operational Impact

The AAV RAM/RS improves the reliability and supportability of the AAV FOV, while also improving Marine Air-Ground Task Force (MAGTF) mobility and survivability. This will ensure the viability of the AAV until the full fielding of the Expeditionary Fighting Vehicle (EFV) in FY 2020.

## Program Status

RAM/RS production started in FY 1999 and program completion is projected for FY 2006. A total of 1,007 vehicles will be rebuilt (887 P-variants, 73 C-variants, and 47 R-variants).

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	100	13
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### Developer/Manufacturer:

**Hull Modification:** United Defense, L.P.,  
Marine Corps Systems Division, Albany, GA  
**Engines:** Cummins Inc., Columbus, IN  
**Vehicle disassembly, component rebuild,  
vehicle assembly:** Marine Corps Logistics  
Base, Albany, GA

# Assault Amphibious Vehicle Family of Vehicles, Modification Kit Program

## Description

The Assault Amphibious Vehicle (AAV) Modification Kit Program provides life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, and improve fleet readiness. The Modification Kit Program, also known as the Mod Kit Line, primarily supports engineering change proposal work, and the development and fielding of the Enhanced Appliqué Armor Kit (EAAK).

## Operational Impact

The AAV Modification Kit Program for the AAV FOV—Reliability, Availability, Maintainability/Rebuild to Standard (RAM/RS) and non-RAM/RS—allows these vehicles to continue to support Marine Air-Ground Task Force operations. Changes include safety upgrades; the replacement of obsolete or no longer available subsystems or components; reliability/maintainability upgrades that reduce total ownership cost; integration of needed Command, Control, Communications, Computers, and Intelligence (C4I) systems; and, interoperability improvements.

## Program Status

The Mod Kit Line will ensure EAAK is available for all fielded AAVs via a procurement effort with kits fielded FY 2004 through FY 2006 and sustainment quantities fielded through FY 2007. Lessons learned during Operation Iraqi Freedom (OIF) and OIF-II have led to many minor safety and survivability changes, which began fielding in FY 04 and will continue through FY 06. Current system improvements include Cargo Hatch Hinge Replacement, M-2 Machine Gun Cradle Modification, and fuel system modification. Future modifications will include the integration of C4I systems as required, integration of a thermal sight, and incorporation of reliability, maintainability and safety improvements.

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<b>Procurement Profile:</b>		FY 05	FY 06
<b>Quantity:</b>	EAAK	25	75
Engineering Change			
Proposal (ECPs)			
Modifications		Various	Various

## Developer/Manufacturer

EAAK Kits: Rafael, Ltd., Haifa, Israel  
Engineering Support: United Defense, L.P., Triangle, VA



# Assault Breacher Vehicle



## Description

The Assault Breacher Vehicle (ABV) is a tracked, armored, engineer vehicle specifically designed for conducting in-stride breaching of minefields and complex obstacles. The ABV will provide crew protection and vehicle survivability, while having the speed and mobility to keep pace with the maneuver force.

Major components of this system include a Full-Width Mine Plow (FWMP), dozer blade, two linear demolition charges (LDC), a lane-marking system, a remote control system, and weapons station integrated on a modified M1A1 tank chassis. ABV will fill the requirement to clear a lane of sufficient width and depth for the assault forces, and will be operated by a two-man crew or with an optional remote control system.

## Operational Impact

The ABV will improve the mobility and survivability of Marine Air-Ground Task Forces. The ABV will provide a deliberate assault breaching capability through minefields and complex obstacles. It will allow assault units to move rapidly through obstacles before threat forces have the full opportunity to mass fires or establish defenses.

## Program Status

Marine Corps Systems Command granted Milestone B in July 2003 and authorization to build three Production Representative Prototypes, in order to conduct additional developmental tests and Initial Operational Testing and Evaluation. Milestone C will take place in FY 2005. Initial operational capability is scheduled during FY 2006, and full operational capability is scheduled for FY 2007.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	4	18
	(LRIPVariants)	

**Developer/Manufacturer:**  
Three Production Representative Prototype  
ABVs: Anniston Army Depot, Anniston, AL

# Internally Transportable Vehicle



## Description

The Internally Transportable Vehicle (ITV) will be a highly mobile weapons-capable light strike platform that can support a variety of operations. It will provide MAGTF ground combat units with a vehicle that is internally transportable in CH-53 and MV-22 aircraft. It also will provide reconnaissance units equal or greater mobility than the Marine Air-Ground Task Force MAGTF maneuver elements they support, thereby enhancing their mission performance and survivability. This is a joint program with U. S. Special Operations Command; the Marine Corps is the lead service.

## Operational Impact

The ITV will play a key role in Ship To Objective Maneuver, allowing MAGTF commanders to take maximum advantage of the speed and range offered by the MV-22 and CH-53 by deploying ground units equipped with highly mobile light-strike vehicles armed with heavy or medium machine guns. The Interim Fast Attack Vehicle is currently fielded and is deployable inside the CH-53 aircraft, but the GCE currently has no ground mobility platform that can deploy inside the MV-22.

## Program Status

The ITV Program is in the System Development and Demonstration Phase. A Request For Proposals was published in February 2004, with a contract awarded to General Dynamics Ordnance and Tactical Systems in November 2004. Initial operational capability is scheduled for January 2007, when one infantry battalion receives eight ITVs.

Procurement Profile:	FY 05	FY 06
Quantity (Prototypes):	4	8
Developer/Manufacturer:	American Growler, Ocala, FL	



# Lightweight 155mm Howitzer



## Description

The Lightweight 155mm Howitzer (LW155) is the world’s first 155mm towed howitzer with a flyweight of less than 9,800 pounds (with digital fire control). It offers greater ground mobility and improved reaction times compared to the M198 howitzer, which weighs nearly 16, 000-lb. M198, that it is designed to replace.

## Operational Impact

The LW155 towed howitzer system—defined as the howitzer, its prime mover, and associated equipmentwill meet the increased operational demands in the areas of lethality, survivability, mobility, deployability, and sustainability required to support maneuver warfare. The system’s operational tempo will increase over that of previous systems, ensuring that greater firepower is available while vulnerability is reduced.

## Program Status

The Assistant Secretary of the Navy for Research, Development, and Acquisition approved the program for low-rate initial production in November 2002. The program is currently producing a total of 94 systems, with initial deliveries supporting production qualification and first-article testing, both of which are currently underway. Successful completion of these tests, along with the joint operational testing with the Army in late 2004, will support a full-rate production decision in early 2005 for a total of 356 Marine Corps systems and 233 Army systems. In parallel, the detailed design of the Army-funded digital fire control system (DFCS) has been successfully completed, and that program has been merged with the M777 to support a combined operational test and a combined full-rate production decision. The DFCS will be retrofitted to all Marine Corps howitzers initially fielded with glass and iron sights, and it will support joint/Army multi-year procurement of the DFCS-equipped weapon (M777A1) for the balance of production in FY 2005-2007.

**Procurement Profile:**      FY 05    FY 06

**Quantity:**                                107        78

### Developer/Manufacturer:

#### Prime Contractor:

BAE Systems, Barrow in Furness, UK

#### Sub-Contractors:

General Dynamics, ATP, Burlington, VT

Wegmann, USA, Lynchburg, VA

Hydro-Mill, Chatsworth, CA

# High Mobility Artillery Rocket System



## Description

The High Mobility Artillery Rocket System (HIMARS) is a C-130-transportable, wheeled, indirect-fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System Family of Munitions (MFOM). The HIMARS launcher consists of a fire control system, carrier (automotive platform), and launcher-loader module that will perform all operations necessary to complete a fire mission. The system is defined as one launcher, two re-supply vehicles, two re-supply trailers, and a basic load of nine pods (six rockets per pod) of MFOM rockets

## Operational Impact

HIMARS addresses an identified, critical warfighting deficiency in Marine Corps fire support. The system will provide responsive, all-weather, 24-hour general support, general support reinforcing, and reinforcing indirect fires, and will extend the range of artillery support provided to Marines in combat from 30 to 60 kilometers. HIMARS will be fielded to two battalions (one active and one Reserve).

## Program Status

HIMARS entered post-Milestone C in November 2003. Marine Corps Systems Command anticipates providing a battery-sized interim capability in FY 2005. Full rate production begins in FY 2006, with initial operational capability achieved in FY 2008 and full operational capability achieved in FY 2009.

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	1	15
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### Developer/Manufacturer:

**Launcher and MFOM:** Lockheed Martin Corp.,  
Missiles & Fire Control Div., Dallas, TX

**Re-supply System:** Oshkosh Truck  
Corporation, Oshkosh, WI



# Expeditionary Fire Support System

## Description

The Expeditionary Fire Support System (EFSS) will be the third and final system of a land-based fire support triad that includes the Lightweight 155mm Howitzer (LW155) and High Mobility Artillery Rocket System (HIMARS). Accompanying Marine Air-Ground Task Forces (MAGTFs) in all types of expeditionary operations, EFSS will be the primary indirect fire support system for the vertical assault element of the ship-to-objective maneuver force. As such, EFSS launcher, mobility platform, a portion of the basic load of ammunition, and a portion of its crew will be internally transportable by a single CH-53E helicopter and/or a single MV-22 tilt-rotor aircraft, and will possess the greatest possible range and flexibility of employment for Operational Maneuver from the Sea (OMFTS).

## Operational Impact

EFSS will expand the maneuver commander's spectrum of fire support options and be capable of successfully engaging a

spectrum of potential point and area targets, including motorized, light armored, and dismounted personnel targets, command and control systems, and indirect fire systems. EFSS will afford the MAGTF commander increased flexibility in tailoring his fire support systems to support the scheme of maneuver. EFSS-equipped units will be especially well-suited for missions requiring speed, tactical agility, and vertical transportability. The EFSS design and configuration will ensure that its tactical mobility, both in the air and on the ground, is equal to the supported force.

## Program Status

EFSS achieved a Milestone B in 2004.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	6
<b>Developer/Manufacturer:</b>	General Dynamics	

# Conventional Ground Ammunition

## Description

Class V(W) Conventional Ground Ammunition consists of more than 300 individual ammunition and explosives items currently found in the Marine Corps ammunition stockpile. These items support all major weapons systems employed by the Marine Corps to include artillery, tank, small arms (such as 9mm, 5.56mm, 7.62mm, and .50-caliber), non-lethal, rockets, missiles, medium caliber (25mm and 40mm), mine clearance systems, and the family of mortar ammunition. Conventional ground ammunition also includes individually employed and hand-emplaced material, such as grenades, demolition equipment, pyrotechnics, and signaling devices. Also included are training- and mission-unique items, such as non-lethal, Special Effects Ammunition Markings System (SESAMS), and Military Working Dog Scent Kits.

## Operational Impact

With the continuing global missions facing the United States, it is imperative that the Marine Corps maintains a healthy procurement profile to address the growing demands of the Marine forces for both war-reserve and live-fire training. Past efforts within the Procurement Ammunition, Navy and Marine Corps (PAN&MC) appropriation have postured the Marine Corps to maintain readiness levels, and meet the current demands for ammunition and explosives required for success on the battlefield.

## Program Status

While not fully funded across all POM06 categories, it is expected that our

ammunition processes and the funding profile will continue, ultimately ensuring that sufficient ammunition is available for future combat or peacekeeping operations involving active-duty and Reserve Marine forces.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>		
Mortar family:	63,550	48,358
Tank family:	11,971	0
Artillery:	371,754	157,414
Rocket family:	12,055	0
Small Arms family:	FY 05: 181,835,394	FY 06: 190,474,647

## Developer/Manufacturer

Various government and commercial manufacturing facilities, including the following representative sample:

**Mortar Family:**  
American Ordnance, Milan, TN;  
Medico, Wilkes-Barre, PA;  
L3 Communications, Lancaster, PA;  
HITECH, East Camden, AR;  
Wilkinson Manufacturing, Port Calhoun, NE;  
and, Armtec Defense Products, Coachella, CA.

**Artillery Ammunition:**  
Chamberlain Manufacturing, Scranton, PA;  
and, American Ordnance, Middleton, IA

**Tank Ammunition:**  
Alliant Tech Systems, Plymouth, MN; and,  
American Ordnance, Middleton, IA.

**Rockets:**  
Talley Defense Systems, Mesa, AZ; and,  
SAAB Bofors Dynamics, Karlskoga, Sweden

**Small Arms Family:**  
Alliant Tech Systems, Independence, MO; and,  
General Dynamics Ordnance Systems, Marion, IL



# Advanced Field Artillery Tactical Data System



## Description

The Advanced Field Artillery Tactical Data System (AFATDS) is an automated fire support command-and-control (C2) system. AFATDS automates the fire planning, tactical fire direction, and fire support coordination required to support maneuver from the sea and subsequent operations ashore.

## Operational Impact

AFATDS is the primary fire support coordination system employed from the Marine Expeditionary Force (MEF) down to battery level operations. The system provides commanders with the ability to rapidly

employ all fire support assets at their disposal, allowing them the flexibility to determine what weapon systems to employ in specific situations. AFATDS greatly enhances the interchange of tactical data between all Marine Air-Ground Task Force (MAGTF) tactical command-and-control systems through the use of graphics, common operating applications, and communications.

## Program Status

AFATDS achieved Full Operational Capability (FOC) in second quarter FY 03. The program began its first hardware refresh in FY 05. Current software version is AFATDS 6.3.2. Follow-on software development will continue throughout the system's lifecycle.

Procurement Profile:	FY 05	FY 06
Quantity:	391	0

## Developer/Manufacturer

### Software Developer:

Raytheon Systems Company, Fort Wayne, IN

### Hardware Integrator:

General Dynamics, Taunton, MA

# Improved Position and Azimuth Determining System

## Description

The M111 Improved Position and Azimuth Determining System (IPADS) is a High Mobility Multipurpose Wheeled Vehicle (HMMWV)-mounted, inertial navigation surveying system, which will be used by artillery survey parties as a secure, all-weather, day-night means for rapidly extending survey control to satisfy the demands of mobile weapons systems. IPADS, which does not rely on Global Positioning System (GPS), accurately aligns GPS-aided, self-locating firing elements on a common survey grid, enabling these firing elements to mass fires. IPADS will provide a highly mobile and accurate means of performing artillery survey. IPADS will determine location coordinates, altitude in meters, direction in millimeters, and will be capable of rapid and accurate self-alignment utilizing ring-laser gyros and accelerometers. The IPADS will replace the currently fielded AN/USQ-70 Position and Azimuth Determining System (PADS) in all Marine Corps artillery units.

## Operational Impact

IPADS supports modernization of field artillery survey capabilities by replacing the obsolescent PADS that was fielded in the 1980s. The availability of PADS hardware and components is becoming increasingly problematic and will likely be unavailable as early as the FY 05-FY 06 timeframe.

## Program Status

IPADS is an Army-led, joint-interest program. IPADS is in the post-Milestone C phase. Operational testing was completed in the second quarter FY 04. The Marine Corps IPADS schedule requires a procurement decision during second quarter FY 05.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	50	5
<b>Developer/Manufacturer:</b>	L3 Communications, Budd Lake, NJ	



# Small Unit Remote Scouting System



## Description

The Small Unit Remote Scouting System (SURSS) is a family of low cost (reusable and expendable) sensor systems providing organic situational awareness directly to the small unit maneuver and support commanders. The SURSS family of sensors will have an aerial, hand-emplaced and munitions delivered component. The aerial component is the only funded element of the program. The Dragon Eye (DE) Unmanned Aerial Vehicle (UAV) is the materiel solution for the aerial component. (The hand-emplaced and munition delivered initiatives will compete in the FY 08 POM.) Dragon Eye is typically employed at the battalion level and below to provide “over-the-hill” day and night reconnaissance. These UAVs can be quickly assembled and launched in about 10 minutes. The UAV operates autonomously (without operator input) after launch and transmits video imagery of the tactical situation, in near-real time, at a range of up to 10 kilometers (line of sight). The UAV’s route of flight is typically pre-programmed on the ground, but the route can be changed in-flight by the operator. Dragon Eye weighs 6 lbs., has a 45” wingspan, and is powered by two battery-operated motors that achieve speeds of approximately 35

mph at altitudes of 300 to 500 feet above the ground. The vehicle, which is bungee-launched by two Marines, flies its route using Global Positioning Satellite data for navigation. The system is man-portable, and can be recovered and reused.

## Operational Impact

The mission of the SURSS is to provide day/night reconnaissance/surveillance of tactical objectives and danger areas beyond the unit’s line of sight, and relay this information in near-real time directly to the supported unit. Dragon Eye is also used in the urban environment, providing information that a battalion could previously gather only by patrolling or outpost activities, thus saving Marine lives and resources.

Ten pre-production prototypes were used by I MEF during Operation Iraqi Freedom (OIF) I. In response to feedback from the operating forces, 35 systems (105 UAVs) were sent to I MEF for OIF II. Due to limited resources (and survivability as a primary concern), DE was most often employed as a battalion asset. DE was operated almost entirely from stationary positions and proved most effective for route and point reconnaissance, and patrol and checkpoint support in urban areas.

## Program Status

The program is in the Production and Deployment Phase. Initial operational capability was achieved in Iraq in May 2004. The acquisition objective is 467 systems.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	40	83
<b>Developer/Manufacturer</b>		
<b>Production Contractor:</b>		
AeroVironment, Inc., Monrovia, CA		

# Company and Battalion Mortars Program

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## Description:

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Company and Battalion Mortars Program provides responsive, all-weather, organic, indirect fire support to commanders in Marine infantry battalions in support of offensive and defensive operations and maneuver on the battlefield. Presently, the company mortar role is filled by the M224 60mm mortar, and the battalion role is filled by the M252 81mm mortar. The Company and Battalion Mortars Program

initiative is submitted to retain an organic indirect fire capability at the battalion and company level, while seeking to improve weight, range, lethality, durability, and fire control capabilities.

## Operational Impact

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The Company and Battalion Mortars Program will provide responsive, all-weather, 24-hour indirect fires for maneuver units.

## Program Status

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Company and Battalion Mortars is in pre-milestone B.

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## Procurement Profile:

**Quantity:** N/A

## Developer/Manufacturer:

Present systems (M224 and M252) produced by Watervliet Arsenal, Watervliet, NY. Manufacturer of replacement systems to be determined.



# Mortar Ballistic Computer

## Description

The Mortar Ballistic Computer (MBC) will automate technical mortar fire direction and replace the M16 and M19 plotting boards as the primary means of computing 60mm and 81mm mortar firing data. The end-state MBC system will consist of a ruggedized, handheld device utilizing the latest Windows-based operating system to host the Mortar Ballistic Kernel Software. This standalone system will be fielded to 60mm mortar sections at the infantry company level, and 81mm mortars at the infantry battalion level.

## Operational Impact

The MBC will provide faster, safer, more accurate computation of the firing data under all combat and training conditions. It will provide the primary means by which Fire Direction Center (FDC) personnel convert request for fire to appropriate firing data and fire commands, by automating the computation and display of accurate firing solutions. The MBC will also provide the capability of an automated firing solution that accounts for non-standard conditions (propellant temperature and meteorological data). Without this capability, mortars must fire time-consuming registration missions that needlessly expend ammunition against inactive targets, while divulging their own location. Common hardware will be used for the MBC. The baseline hardware will be the same for the

Pocket Forward Entry Device (PFED) used by Army/Air Force Forward Air Controllers (FAC), Back-Up Computer System (BUCS) used by Marine Corps artillery units, and Dismounted Digital Automated Computer Terminal (D-DACT) used by the Marine Corps infantry. This provides common configuration across the services.

## Program Status

MBC is an Acquisition Category III, Army-led, joint-interest program. The MBC project office is coordinating with the Army's Program Manager (PM) Mortars to leverage their Lightweight Handheld Mortar Ballistic Computer (LHMBC) effort. A research, development, test, and evaluation effort began in first quarter FY 03 to develop the MBC system. Software has passed Full Qualification Tests (FQT), and the Operational Test was completed during November 2004. Marine Corps hardware procurement decision is currently scheduled during second quarter FY 05.

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	623	0
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**Developer/Manufacturer:**

**Software and Integration:**

Program Manager, Mortars, Picatinny Arsenal, Aberdeen Proving Grounds, MD

**Hardware:**

Obtained from U.S. Government General Services Administration

# Common Laser Range Finder



## Description

The Common Laser Rangefinder (CLRf) program is the single program of record for the material development of current and future Marine Corps Laser Rangefinder (LRF) requirements, and is responsible for the total lifecycle management of all Marine Corps targeting LRFs. The program will address capability shortfalls and emerging technologies through modifications and technology insertions. The CLRf program is designated as an Acquisition Category IV (T) program and will procure the commercial-off-the-shelf/non-developmental item (COTS/NDI) Vector 21B systems to meet the existing requirements for the Marine Corps LRF capability. The Vector 21B is a small, lightweight, and eye-safe laser rangefinder and azimuth with inclination sensors that export targeting data to the Precision Lightweight

Global Positioning System (PLGR), and/or the Defense Advanced Global Positioning System (GPS) Receiver (DAGR) and Target Hand-Off System (THS).

## Operational Impact

The Vector 21B will facilitate first-round accuracy during fire-for-effect missions which, in turn, will increase firing platform lethality and reduce ammunition expenditures. The system provides target location against tank-sized targets at ranges of up to 12 kilometers. The CLRf program will provide a common laser rangefinder solution to fulfill multiple requirements, which will allow these new capabilities to be fielded faster and reduce acquisition and sustainment costs.

## Program Status

A base contract for CLRf awarded in July 2003 includes the procurement of 501 systems and production options on up to 3,000 additional systems through FY 2008. The program received its Milestone C decision during first quarter FY 05. Fielding is scheduled to begin third quarter FY 05.

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	150	450
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### Developer/Manufacturer:

#### Prime Contractor:

Ashbury International Group, Sterling, VA

#### Major Subcontractor:

Vectronix, Switzerland



# Tactical Hand-Held Radio



## Description

The Tactical Hand-Held Radio (THHR), which is also designated as the AN/PRC-148(V)(C), is a small, secure device that provides Marine Corps units with a standardized and maintainable radio to support the communications requirements of small units (platoon, squad, and team). The THHR operates in the AM and FM bands, contains embedded communications security, and is interoperable with other radio systems, such as Single-Channel Ground and Airborne Radio System (SINCGARS) and HaveQuick II, in the single-channel mode and frequency-hopping modes.

## Operational Impact

The THHR is an interim system. Legacy tactical hand-held equipment within the Marine Corps had exceeded its expected life span and was rarely used. As a result, the hand-held units primarily consisted of locally purchased, commercially available radios that were not interoperable with Marine Corps combat net radios. The THHR has consolidated and exceeded legacy capabilities, lightened the combat load of individual Marines and small units, and reduced tactical hand-held radio operating costs.

## Program Status

The THHR is in the Production and Deployment Phase (Milestone C). The Marine Corps is developing the THHR with the U.S. Special Operations Command (USSOCOM). USSOCOM currently has a production contract in place that facilitates joint acquisition with the Marine Corps, with fielding that commenced in 2001. The Marine Corps' approved acquisition objective (AAO) is 5,620 radios.

**Procurement Profile:** FY 05 FY 06

**Quantity:** 495 597

**Developer/Manufacturer:**

Thales Communications, Inc., Clarksburg, MD

# Tactical Remote Sensor Systems-Product Improvement Program



## Description

Tactical Remote Sensor Systems (TRSS) provide all-weather remote monitoring of activity within and near a given objective area. The TRSS- Product Improvement Program (PIP) is an incremental upgrade to selected portions of these systems. The TRSS-PIP will use state-of-the-art seismic, infrared, magnetic, acoustic, and thermal-imaging sensors to autonomously classify, identify, and report threat activity, which is active in their detection range according to operator selectable reporting criteria. Major components of the TRSS-PIP are Unattended Ground Miniaturized Sensors (UGMS) that are hand-emplaced, and Advanced Air-Delivered Sensors (AADS) that are fixed-wing emplaced. These systems will upgrade the current fielded baseline and provide a Corps-wide capability for unattended ground surveillance that

can be tailored to the operational requirement. TRSS is employed by the Marine Corps' Ground Sensor Platoons (GSPs).

## Operational Impact

Initiated in 1991, TRSS replaced the Vietnam-era REMBASS system with upgraded electronics, sensors, and relays, which were reduced in weight and size, and monitoring devices that give the GSP extra capabilities without changing its operational profile.

## Program Status

TRSS achieved initial operational capability in 1992 and is currently 100 percent fielded.

<b>Procurement Profile:</b>	<b>FY 05</b>	<b>FY 06</b>
<b>Quantity:</b>		
Thermal Imagers	155	37
Electro-optical Imagers	155	37
Target Recognition Sensors	68	350
Advanced Air		
Delivered Sensors	80	145
Satellite Communications		
Modules	100	
<b>Developer/Manufacturer:</b>		
NOVA Engineering, Inc., Cincinnati, OH		
Textron Systems, Wilmington, MA		
Ocean Systems Engineering Corporation (OSEC), Carlsbad, CA		



# Target Location, Designation and Hand-Off System



## Description

The Target Location, Designation and Hand-off System (TLDHS) is a modular, man-portable equipment suite that provides the ability to quickly acquire targets in day, night, and near-all-weather visibility conditions. Operators are able to accurately determine their own location, as well as that of their targets, digitally transmit (hand-off) data to supporting arms elements, and designate targets for laser-seeking Precision Guided Munitions (PGM) and Laser Spot Trackers (LST). The TLDHS will be fielded to Forward Observer (FO) Teams, Naval Gun Fire (NGF) Spot Teams, Tactical Air Control Parties (TACPs), and Reconnaissance Teams.

## Operational Impact

The system enables the user to perform target acquisition, and then hand targets off to fire support agencies via an interface with tactical data systems, using current and planned communications equipment. TLDHS will employ a laser designator for guiding PGMs and laser spot trackers. The primary users of the system will be Forward Air Controllers (FACs) for maneuver elements, FOs for field artillery, Fire Power Control Teams (FCT) of the Air and Naval Gunfire Liaison Companies (ANGLICO), as well as Marine Liaison Elements (MLE),

Division and Force Recon Marines, and supporting establishments responsible for the training of FOs, FACs, and FCT personnel.

## Program Status

An evolutionary acquisition approach is used for the TLDHS program. All of the hardware components of the system are commercial-off-the-shelf (COTS) or government-off-the-shelf (GOTS). As such, they continue to be upgraded and improved as technology advances. In order to keep pace with these advances, three block upgrades are planned after the initial fielding block of the TLDHS system. Block I completed fielding during FY 04. This initial capability provides the Marine FAC a digital Close Air Support (CAS) capability for AV-8B and F/A-18 aircraft. As other developmental programs are further refined, such as the Rugged Handheld Computer (RHC) and Joint Tactical Radio System (JTRS), they will be incorporated/ upgraded within the TLDHS system. Version updates of Target Hand-Off System (THS) software will also be included as a part of the block upgrades. The TLDHS evolutionary acquisition strategy is divided into four blocks that represent the progressive acquisition of system capabilities and performance.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	50	150
<b>Developer/Manufacturer:</b>		
<b>THS Software:</b>		
<b>Stauder Technology, Saint Peters, MO</b>		
<b>Ruggedized Handheld Computer:</b>		
<b>General Dynamics, Taunton, MA</b>		
<b>Radio: Harris RF Communications, Rochester, NY</b>		

# Topographic Production Capability

## Description

The TPC supports the Marine Corps operational mission by improving the topographic and geospatial analytical capabilities of the Marine Expeditionary Forces (MEF) Topographic Platoons and, for the first time, provides the Marine Division with a resident topographic capability. This resulted in a system that speeds geospatial information collection and processing and produces and disseminates up-to-date mapping products to the supported commander, whether at the Division, MEF or joint levels. The effort integrates cutting-edge commercial and Non-Developmental Item (NDI) hardware and software into a scalable, deployable, man-portable system. TPC consists of the Tactical Geospatial Information Library (TGIL), Deployable Geospatial Information Library (DGIL) Workstation, DGIL Server, Digital Terrain Analysis Mapping System (DTAMS), and Geodetic Survey Set (GSS). The primary difference between the TGIL, DGIL, and DTAMS is in the amount of information that may be stored, processed, and disseminated.

## Operational Impact

The TPC is used by the MEF Topographic Platoon and provides deployable modules down to the Major Subordinate Commands (MSC) and the Marine Expeditionary Units (MEU). It may also be used to support the commander, Joint Task Force (JTF), or Marine component commander. The TPC provides the capability to scale up or down, dependent on the type of mission, size of the force, and specified geospatial requirements. The TPC is a transportable, highly mobile, modularized network of systems that allows the commander to exercise near-real-time control, coordination, and direction of Marine Air-Ground



Task Force (MAGTF) geospatial and Geographic Intelligence (GEOINT) production operations. Marine GEOINT specialists can employ TPC equipment in garrison, field, and shipboard operations and exercises.

## Program Status

The TPC has been delivered to I, II, and III MEFs. The National Geospatial Intelligence School (NGS) received a TPC in fourth quarter 2004. Anticipated fielding of the TPC to the Marine Corps Intelligence Activity (MCIA) is second quarter FY 05. Additionally, TPC components have been assigned to support each of the Marine Divisions, the Chemical Biological Incident Response Force (CBIRF) in Indian Head, MD, and the Marine Corps Special Operations Command (MARSOC) Detachment-1 at Marine Corps Base, Camp Pendleton, CA.

Procurement Profile:	Quantity:	
	FY 05	FY 06
TGIL	1	0
DGIL-S	1	0
DGIL-W	8	0
DTAMS	0	0

**Developer/Manufacturer:**  
**Hardware/Software Integrator:**  
Northrop Grumman Information Technology,  
TASC, Chantilly, VA



# Transition Switch Module

## Description

The TSM supports Marine Air-Ground Task Force (MAGTF) command and control mission objectives. The TSM provides local and remote subscriber access, circuit switching and multiplexing, call service attendant, transmission multiplexing, transmission security, and patching capability for deployed Marine forces. The TSM is designed to operate within the context of the current and planned MAGTF C4I architecture as well as providing C2 services to MAGTFs that are capable of conducting operations across the spectrum of conflict. The TSM supports the communication requirements of the commander as they provide complementary capabilities and enabling operations in support of Joint, Combined and Coalition forces.

TSM will also be a key element in the Marine Corps' transition from legacy tri-service tactical switches to current commercial technology. TSM will provide three major functions. The deployable end office suite (DEOS) will provide voice-circuit switching and call-service-attendant

capabilities. The remote subscriber access module (RSAM) will extend these services to remote users. The deployable integrated transport suite (DITS) will provide bandwidth management, multiplexing, transmission security, and technical control functions. The DEOS, RSAM, and DITS will be integrated into transit cases for unit transport.

## Operational Impact

Commercial-off-the-shelf (COTS) circuit switching within the Marine Corps allows for reduction of legacy equipment, improved interoperability, and more flexible modernization efforts.

## Program Status

Contract award was protested. The Government entered into discussions with offerors and is now back in source selection. Contract award is expected during March 2005 with Milestone C in May 2006.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	75
<b>Developer/Manufacturer:</b>	TBD	

# Combined Arms Command and Control Upgrade System



## Description

The Combined Arms Command and Control Trainer Upgrade System (CACC-TUS) for the Combined Arms Staff Trainer will provide realistic command-and-control integration and fire support coordination training for Marine Air-Ground Task Force (MAGTF) staffs up to, and including, the Marine Expeditionary Brigade (MEB) level.

## Operational Impact

This combined-arms staff trainer (CAST) upgrade will support the training required to prepare Marine Corps units to participate in live-fire training-particularly combined-arms exercises (CAX) held at MAGTF Training Command 29 Palms, CA, by providing the most effective classroom training and pre-CAX rehearsal opportunities prior to arrival.

## Program Status

The Marine Corps awarded a contact for this upgrade in September 2001. The contractor/government team is investigating training technologies that have potential for transition into the CAST trainer to improve the training effectiveness of the system. In August 2002, an additional contract was awarded to support the project based on the finding of the initial contract award.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b> (prototypes)	2	2
<b>Developer/Manufacturer:</b>	MTS Technology and SAIC, Orlando, FL	



# Pocket-Sized Forward Entry Device



## Description

The Army has fielded the Pocket-Sized Forward Entry Device (PFED). The PFED enables the Forward Observer (FO) to digitally transmit the Call for Fire (CFF) to the Advanced Field Artillery Tactical Data System (AFATDS). It is a small, portable, ruggedized, communications-enabled computer that allows the operator to digitally communicate with artillery units to mark targets, while performing artillery and mortar fire missions. The PFED is used to compose, edit, transmit, receive, store, and display messages, and process data used in the conduct, planning, and execution of fire missions. It interfaces via cables to the Precision Lightweight GPS (Global Positioning System) Receiver, or PLGR, a laser rangefinder, and Single-Channel Ground and Airborne Radio System (SINC-GARS). Using the PLGR to determine the FO's position and the laser rangefinder to determine the location of the target with respect to the PLGR location, the PFED computes the target location and displays it for the FO. This information is automatically

entered into a CFF message. The completed CFF message is then transmitted to the supporting AFATDS.

## Operational Impact

The PFED provides the ground fire support community with the digital entry capability that was requested to support Operation Iraqi Freedom (OIF). The Marine Corps fielded the PFED as an interim device for FOs to increase accuracy and speed up the CFF process, thus providing more responsive fire support to the warfighter. The PFED functionality is being incorporated into the Target Location, Designation and Hand-Off System (TLDHS) Block II. TLDHS Block II will replace the PFED.

## Program Status

The PFED has been designated an Abbreviated Acquisition Program. As a part of the TLDHS program, the PFED was an interim solution to provide more responsive fire support capability. Full Operational Capability (FOC) of 151 PFEDs was achieved in September 2004.

Procurement Profile:	FY 05	FY 06
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Quantity:	0	0
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Developer/Manufacturer:

Hardware:

Talla-Tech, Tallahassee, FL

Modem:

Raytheon Systems Company, Ft. Wayne, IN

Software:

Booze Allen Hamilton, McLean, VA

# Data Automated Communications Terminal

## Description

The Mounted Data Automated Communications Terminal (DACT) provides command and control (C2) capabilities in support of commanders ranging from regiment down to a mechanized platoon level. The Mounted DACT system receives position-location data via an integrated military compliant GPS receiver, and exchanges PLI and messages with other users of Marine Air-Ground Task Force (MAGTF) Command, Control, Communications, Computers and Intelligence (C4I) systems. The Mounted DACT is used to transmit, receive, store, retrieve, create, modify, and display map overlays and Commanders Critical Information Requirements (CCIRs). Mounted DACT users include, but are not limited to, regimental/battalion commanders, company/battery commanders, main battle tanks, Assault Amphibious Vehicle (AAV) troop commanders, Light Armored Vehicle (LAV) platoon commanders, and heavy infantry weapons and antitank section leaders

The Dismounted DACT system user, will send and receive PLI and message data via a terrestrial communications network with a Mounted DACT located at the company level. The Dismounted DACT system will receive location data via an integrated military compliant GPS receiver.

## Operational Impact

The DACT extends the MAGTF commander's C2 personal computer (C2PC) network down to the squad level. The DACT's improved capabilities will meet stipulated Operational Requirements and Operation Iraqi Freedom (OIF)-derived requirements to provide Blue Force

tracking and automated communications support for commanders in tactical operations. New capabilities include Beyond Line of Sight (BLOS) and enhanced communication paths, improved Graphic User Interface (GUI) software and a larger screen, and Selective Availability Anti-Spoofing Module (SAASM) GPS integration. These added capabilities make the DACT an integral component of Joint Blue Force Situational Awareness.

## Program Status

Fielding of the M-DACT began in FY 03 to support combat operations during OIF-I. More than 814 M-DACTs have been fielded and are in the hands of operating forces. As the result of a Fielding Decision received during FY 04, procurement of D-DACT hardware has been initiated and fielding began in first quarter FY 05.

Procurement Profile:	FY 05	FY 06
Quantity:		
M-DACT	0	0
D-DACT	506	0
BFT	0	0
MTX	0	0

## Developer/Manufacturer

### Hardware:

DACT: Talla-Tech, Tallahassee, FL

BFT: Northrop Grumman Mission Systems, Carson, CA

MTX: General Dynamics C4 Systems, Scottsdale, AZ

### Software:

DACT: Northrop Grumman Mission Systems, San Diego, CA

BFT: Northrop Grumman Mission Systems, Carson, CA



# Portable Inductive Artillery Fuze Setter

## Description

The Portable Inductive Artillery Fuze Setter (PIAFS) is a lightweight, hand-held electronic device that mates with and is used to set electronic fuzes. It consists of two basic components: the hand-held PIAFS device and its internal power source (standard D-cell or lithium batteries). PIAFS displays the selected fuze-setting functions and confirms that the fuze has been properly set. It supports all inductively set artillery fuzes currently in inventory/production for 105mm and 155mm weapon systems.

## Operational Impact

The PIAFS will inductively set all separate loading fuzes for indirect fire projectiles capable of being inductively set. The current inventory of Marine Corps fuzes

will be expended and replaced by the Multi-Option Fuze Artillery (MOFA), which can only be set using the PIAFS. PIAFS is compatible with all U.S. and NATO standard inductive-settable fuzes.

## Program Status

Authority to procure was delegated by Commander, Marine Corps Systems Command, to Program Manager, Fire Support Systems. Rock Island arsenal was awarded the contract in December 2004. Delivery is to be completed in fourth quarter FY 05.

Procurement Profile:	FY 05	FY 06
Quantity:	508	0
Developer/Manufacturer:	TBD by Rock Island Arsenal (PICA for the system)	

MAJOR ACQUISITION PROGRAMS

# Aviation Combat Element Programs

## Part 3





# MV-22 Osprey

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## Description

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The MV-22 Osprey tilt-rotor is an advanced-technology vertical/short takeoff and landing (V/STOL), multi-purpose tactical aircraft that will replace the current fleet of Vietnam era CH-46E and CH-53D aircraft. The MV-22 will join the Expeditionary Fighting Vehicle (EFV) and Landing Craft Air Cushion (LCAC) as an integral part of the Seabasing pillars necessary to execute Expeditionary Maneuver Warfare (EMW). Specific missions include expeditionary assault from land or sea, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistics support, and special warfare. The MV-22's design incorporates the sophisticated, but mature technologies of composite materials, fly-by-wire flight controls, digital cockpits, airfoil design, and advanced manufacturing processes. The MV-22 Osprey is capable of carrying 24 combat-equipped Marines or a 10,000-lb. external load, and has a strategic self-deployment capability with a 2,100 nautical-mile range with single aerial refueling. The MV-22's prop-rotor system and

engine/transmission nacelle, which is 38 feet long and mounted on each wing tip, allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the MV-22 into a high-speed, high-altitude, fuel-efficient, turbo-prop aircraft. The MV-22 is a multi-mission aircraft designed for use by all the services. The Marine Corps, Navy, and Air Force are committed to the fielding of this unique aircraft. Procurement of the MV-22 remains the Marine Corps' No. 1 aviation acquisition priority.

## Operational Impact

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The MV-22 will be the cornerstone of Marine Corps' assault support capability, possessing the speed, endurance, and survivability needed to fight and win on tomorrow's battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for expeditionary and Prepositioning Maritime Forces (MPF).

## Program Status

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The Integrated Test Team (ITT) at

Naval Air Station, Patuxent River, MD. Edwards Air Force Base, CA, and the Bell facility in Amarillo, TX and VMX-22 (an independent test organization) have flown more than 4,600 hours. VMX-22 currently has fifteen aircraft and is taking delivery of new MV-22s every month, as the squadron continues to train pilots in preparation for the Operational Evaluation in Spring 2005. The squadron recently completed an Operational Assessment of the MV-22, during which all events the squadron had planned for the aircraft were completed on or ahead of schedule. One of the events completed during the assessment was external lift and transport of the new light weight 155 howitzer at 69 nautical miles, which exceeds the Key Performance Parameter. Rigorous developmental flight-testing continues and constitutes the *most extensive testing* of helicopter flight phenomena ever undertaken.

MV-22 aircraft will be produced in three blocks:

**Block A** series provide an improved aircraft with which the Marine Corps can train and fight. This includes a software enhancement and nacelle reconfiguration, plus additional reliability and maintainability (R&M) improvements.

**Block B** series aircraft provide further *improvements in effectiveness and suitability* for operators and maintainers, including better access to the nacelle for inspection purposes and substantial R&M advancements.

**Block C** configuration incorporates *mission enhancements*.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	8	9
<b>Developer/Manufacture:</b>	Bell Helicopter Textron, Fort Worth, TX The Boeing Company, Philadelphia, PA	



# H-1 Upgrade Program



## Description

The H-1 Upgrade (UH-1Y/AH-1Z) program replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with a new four-bladed, all-composite rotor system that is coupled with a sophisticated, fully integrated, state-of the-art cockpit. In addition to the new rotor system and cockpit, the UH-1Y and AH-1Z will incorporate a new performance-matched transmission, four-bladed tail rotor and drive system, and upgraded landing gear for both aircraft. Additionally, structural modifications to the AH-1Z will support the increase to six weapons stations. The advanced cockpit, common to both aircraft, reduces operator workload, improves situational awareness, and provides growth potential for future weapons and joint interoperability. The cockpit integrates on-board planning, communications, digital fire control, self-contained navigation, night targeting, and weapons systems in mirror-imaged crew stations. The UH-1Y and AH-1Z are approximately 84-percent common throughout the aircraft, which significantly benefits the Marine Air-Ground Task Force (MAGTF) in supportability of the two aircraft. Ongoing developmental testing of the UH-Y and AH-1Z has demonstrated a marked increase in aircraft agility, maximum continuous speed, and payload.

## Operational Impact

The H-1 Upgrade program is designed to resolve existing safety deficiencies, significantly improve operational capabilities, and reduce life-cycle costs. Commonality between aircraft will greatly enhance the maintainability and deployability of the systems with the capability to support and operate both aircraft within the same squadron structure.

## Program Status

The H-1 Upgrade continues in the Engineering and Manufacturing Development (EMD) phase. To date, the five EMD aircraft (three AH-1Zs and two UH-1Ys) have amassed more than 2,500 flight hours since first flight. In December of 2003, a contract was signed for Low Rate Initial Production of nine aircraft. In 2005, the program will enter the Operational Test phase, which will verify the effectiveness and suitability of these aircraft for the warfighter. Due to substantial operational demands and aircraft attrition—both resulting from the Global War On Terrorism—the Marine Corps is pursuing a “build new” strategy for the UH-1 and examining a “build new” strategy for the AH-1, in order to preclude significant inventory shortfalls. The total program objective is 100 UH-1Ys and 180 AH-1Zs.

**Procurement Profile:** FY 05 FY 06

**Quantity:** 9 10

**Developer/Manufacturer:**

Bell Helicopter Textron Inc., Fort Worth, TX

**Integrated Cockpit:**

Northrop Grumman, Woodland Hills, CA

**AH-1Z Target Sight System:**

Lockheed Martin, Orlando, FL

# Heavy Lift Replacement (HLR) Program

## Description

The CH-53E Super Stallion, which was used extensively in Operation Enduring Freedom, is a three-engine, long-range, heavy-lift helicopter that is key to the assault support function of Marine Aviation. The current fleet of aircraft will reach the end of its service life during this decade. A comprehensive upgrade is required to effectively meet Marine Air-Ground Task Force (MAGTF) and joint warfighting requirements over the next 25 years. The upgrade focuses on reliability, maintainability, cost of ownership, and performance.

The Heavy Lift Replacement (HLR) program, formerly known as the CH-53X program, is the solution to maintain the Super Stallion as the premier heavy-lift aircraft beyond the year 2025. To properly and cost-effectively support sea-based Expeditionary Maneuver Warfare (EMW) for the Marine Corps in the 21st century, the upgraded CH-53 will deliver increased range and payload, reduced operations and support costs, increased commonality with other assault support platforms, and digital interoperability.

## Operational Impact

The HLR program will improve operational capabilities and reduce life-cycle costs. Commonality between other Marine Corps aircraft in terms of engines and

avionics will greatly enhance the maintainability and deployability of the aircraft within the Air Combat Element (ACE). The HLR will vastly improve the ability of the MAGTF and Joint Task Force to project and sustain forces ashore from a sea-based center of operations in support of EMW. The performance improvements will enable the vertical insertion of two combat-loaded High Mobility Multipurpose Wheeled Vehicles (HMMWVs), one armored vehicle, or three 9,000-lb. sustainment loads to three separate landing zones. The reliability, maintainability, and cost of ownership improvements will allow all of this to happen more efficiently and at a lower cost.

## Program Status

The Operational Requirements Document (ORD) completed joint staffing and was signed in December 2004. When the Analysis of Alternatives (AoA) was completed in September 2003, it was determined that building a new airframe was the most cost effective course of action.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>		
<b>CH-53E:</b>		
Sikorsky Aircraft Corporation, Stratford, CT		
<b>HLR:</b>		
Sikorsky Aircraft Corporation, Stratford, CT		



# KC-130J



## Description

The KC-130 is a versatile four-engine, tactical aerial refueler/assault support transport aircraft. It is the only long-range, fixed-wing, assault-support capability organic to the Marine Corps. The KC-130J, with its increase in speed (+20 percent) and range (+35 percent) over legacy aircraft, features an improved air-to-air refueling system and a state-of-the-art flight station. The flight station includes two Head-Up-Displays (HUDs), night vision lighting, augmented crew station, and fully integrated digital avionics architecture. An Allison AE 2100D3 propulsion system, with full authority digital electronic controls (FADEC), Dowty R391 advanced technology six-bladed propeller system, and a 250-knot cargo ramp and door, complete the package, which will provide the Marine Air-Ground Task Force (MAGTF) commander with a state-of-the-art, multi-mission, tactical aerial-refueler/assault-support transport asset well into the next century. The Marine Corps is currently replacing its aging active fleet of KC-130Fs and KC-130Rs with the new KC-130J.

## Operational Impact

The KC-130 provides fixed-wing, rotary-wing, and tilt-rotor with tactical in-flight refueling; rapid ground refueling of myriad of aircraft or tactical vehicles; assault air transport of air, land or aerially delivered personnel and equipment; airborne command and control augmentation; pathfinder; battlefield illumination; tactical aero-medical evacuation; and, Tactical Recovery of Aircraft and Personnel (TRAP) support. This force multiplier is well suited to the mission needs of the forward-deployed MAGTF. The KC-130J will bring increased capability and mission flexibility to combat planning with its satellite communications system capability, survivability enhancements, night systems improvements, enhanced aerial refueling and rapid ground refueling capabilities, and improved aircraft systems reliability.

## Program Status

The KC-130J is procured as a commercial-off-the-shelf (COTS) aircraft currently in production. In FY 03, the Marine Corps entered a multi-year procurement program with the Air Force to bring the total number of Marine Corps KC-130J aircraft on contract to 33. The Marine Corps Program of Record for the KC-130J is 51 aircraft. Developmental/operational testing and an operational evaluation will be completed in FY 05 with continued delivery to the fleet and Initial Operational Capability (IOC) by February 2005.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	4	12
<b>Developer/Manufacturer</b>	Lockheed Martin Aeronautics Company	

# F-35 Short Take-Off Vertical Landing (STOVL) Joint Strike Fighter (JSF)



## Description

The F-35 Short Take-Off Vertical Landing (STOVL) Joint Strike Fighter (JSF) is a single engine, stealthy, supersonic, strike-fighter aircraft capable of short take-offs and vertical landings. JSF will combine the basing flexibility of the AV-8 with the multi-role capabilities, speed, and maneuverability of the F/A-18 to fulfill both the air-to-ground and air-to-air requirements of the Marine Corps. The aircraft will have very low radar cross-section and provide superior capabilities over legacy aircraft in the areas of survivability, lethality, and supportability. The F-35 will replace the Marine Corps' AV-8B and F/A-18A/C/D fleets, affirming a tremendous growth potential as the JSF matures into the premier next-generation weapons system.

## Operational Impact

The STOVL JSF provides a multi-mission offensive air support and an offensive/defensive anti-air capability. The STOVL JSF also provides the Marine Air-Ground Task Force (MAGTF) with a platform capable of tactical air control and tactical reconnaissance. Additionally, the aircraft will be able to provide destruction

of enemy air defenses. The requirements for this aircraft are focused on readiness, the combined arms concept, and expeditionary capability and the ability to conduct Expeditionary Maneuver Warfare.

## Program Status

The JSF is a joint program with the Air Force, Navy, Marine Corps, and the United Kingdom as Level I partners. Participating as Level II partners are Italy and The Netherlands, and Level III partners are Canada, Denmark, Norway, Turkey, and Australia. After reassessing the program baseline, the Systems Development and Demonstration (SDD) phase is scheduled to last until 2013. The SDD phase will include the certification of various precision engagement capabilities, as well as cutting-edge sensor fusion that will directly support the MAGTF commander. The program is scheduled to conduct the Critical Design Review (CDR) in November 2005. After completing CDR, the prime contractor will begin preparing the long lead items needed for Low Rate Initial Production (LRIP) scheduled for 2006. STOVL first flight is scheduled for summer of 2007, with follow on Initial Operational Capability (IOC) in 2012.

<b>Procurement Profile:</b>	FY 06	FY 07
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<b>Quantity:</b>	0	0
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**Developer/Manufacturer:**

**Air Vehicle:**

Lockheed Martin, Northrop Grumman, and British Aerospace Engineering

**Propulsion:**

Pratt & Whitney and General Electric



# Common Aviation Command and Control System (CAC2S)



## Description

The Common Aviation Command and Control System (CAC2S) is a coordinated modernization effort to replace the existing command-and-control (C2) equipment of the Marine Air Command and Control System (MACCS), which will provide the Aviation Combat Element (ACE) with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate air operations. The CAC2S will accomplish MACCS missions with a suite of operationally scalable modules capable of supporting any operational contingency. The CAC2S integrates the functions of aviation C2 into an interoperable naval system that will support the core competencies of all Marine Corps warfighting concepts.

## Operational Impact

The CAC2S, in conjunction with MACCS organic sensors and weapons systems, supports the tenets of *Expeditionary*

*Maneuver Warfare* and fosters joint interoperability with the C2 systems. CAC2S will replace legacy C2 systems in the following Marine aviation C2 elements: Tactical Air Command Center (TACC), Tactical Air Operations Center (TAOC), Direct Air Support Center (DASC), Marine Air Traffic Control Detachment (MATCD), and Low Altitude Air Defense Battalion (LAAD BN).

## Program Status

CAC2S is being developed in three increments as part of an evolutionary acquisition strategy. Increment I will replace the functionality of the TAOC, and will baseline the core information fusion and management function common to all increments. Increment II will achieve integration between CAC2S and the Air Traffic Navigation and Coordination System for air traffic control functionality. CAC2S is an Acquisition Category II Program in the system development and demonstration phase. Initial Operational Capability (IOC) for Increment I and Increment I is planned concurrently for FY 2007.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>	Raytheon Integrated Defense Systems, San Diego, CA	

# AN/TPS-59(V)3 Radar System



## Description

The AN/TPS-59(V)3 radar system is the Marine Corps’ only long-range, 3-D, air surveillance, Tactical Ballistic Missile (TBM) capable radar. The AN/TPS-59(V)3 radar system is a transportable, solid-state, L-band radar. It is the MAGTF’s principal air surveillance radar and is integrated into the AN/TYQ-23(V)4 Tactical Air Operations Module (TAOM). It may also be configured for operation with the AN/MSQ-124 Air Defense Communications Platform (ADCP) to provide TBM track data to the Joint Tactical Information Distribution System. The radar has also become a key component in the employment of the Navy’s Cooperative Engagement Capability (CEC) and is the Marine Corps’ lead sensor in the development of the Composite Tracking Network (CTN).

## Operational Impact

The AN/TPS-59(V)3 is optimized to detect and track tactical ballistic missiles (TBMs) and air-breathing targets (ABTs), either of which can be a serious threat to

MAGTF operations. The AN/TPS-59(V)3 will primarily be used to support MAGTF aviation during sustained operations ashore, as part of a joint theater air and missile defense architecture. The radar supports the MAGTF commander in Anti-Air Warfare (AAW) operations with en route traffic control to a distance of 300 nautical miles (nmi) and TBM surveillance to 400 nmi. Eight (8) of the eleven (11) AN/TPS-59(V)3 radar systems were deployed during Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), with five (5) deployed in direct support.

## Program Status

Research and development efforts have produced engineering change proposals to replace obsolete hardware and software improvements, which ensure that the AN/TPS-59(V)3 remains a viable sensor throughout its planned service life. Implementation of these changes began in FY 2003. Additionally, the Marine Corps is pursuing a 3-D, long-range sensor replacement capability for the AN/TPS-59(V)3 that is still capable of engaging air-breathing and TBM targets, but which possesses a vastly reduced footprint and improved mobility. Initial operational capability of the upgraded radar is scheduled for FY 2012.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	various	various
<b>Developer/Manufacturer:</b>	Lockheed Martin Corporation, Syracuse, NY	



# Multi-Role Radar System (MRRS)

## Description

The Multi-Role Radar System (MRRS) is a highly mobile radar system to be employed by the Marine Air-Ground Task Force (MAGTF) in all phases of Marine Corps operations. The MRRS is a medium-range surveillance radar used to detect and track aircraft, cruise missiles, and unmanned aerial vehicles (UAVs). The system will serve as a gap-filler radar by providing three-dimensional (3-D) coverage of those areas out of view of the AN/TPS-59 (V) 3 due to terrain masking, mandated frequency blanking of the primary sensor, or other line-of-sight limitations. Additionally, the MRRS will be capable of providing radar-cueing data to all short-range air defense units deployed in support of the MAGTF. The radar is intended to replace and perform all the missions currently associated with the AN/TPS-63 radar, AN/TPS-73 Air Traffic Control radar, and the AN/MPQ-62 surveillance radar. The radar will have connectivity to the Composite Tracking Network (CTN) and be deployed early during Expeditionary Maneuver Warfare (EMW) distributed operations to augment sea-based air defense sensors and command and control capabilities.

## Operational Impact

The radar will provide the speed and flexibility required for enhanced detection identification of low-level, low-radar, cross-section Air Breathing Targets (ABT), and tracking in the execution of all EMW-distributed operations. Execution and support of these strategies require the maneuver and control of aircraft, cruise missile, and

UAV assets from ships well over-the-horizon directly to their objectives, at much greater distances inland than has been historically required. In addition, the radar will be capable of cueing and reporting on targets detected within its coverage limits to designated air command and control agencies. The reduced logistical footprint and mobility of the radar will enhance the capabilities of Marine Air Command and Control System (MACCS) elements in support of all phases of MAGTF operations. Once ashore, the radar will possess the mobility required to keep pace with supported maneuver elements and will complement the Marine Corps' long-range radar, the AN/TPS- 59 (V) 3, by providing accurate low-level tracks.

## Program Status

The MRRS achieved Milestone 0 in August 2000 and the Joint Requirements Oversight Council (JROC) approved the Operational Requirements Document (ORD) in July 2004. Initial Operational Capability (IOC) is planned for FY 10 with Full Operational Capability (FOC) in FY 16.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>	TBD	

# Air Surveillance and Precision Approach and Radar Control System (ASPARCS)

## Description

The Air Surveillance and Precision Approach and Radar Control System (ASPARCS) is the program that will provide our next generation expeditionary air traffic control (ATC) equipment. The Air Traffic NAVigation, Integration, and Coordination System (ATNAVICS) is the material solution to this requirement for replacement of legacy expeditionary equipment with High Mobility Multipurpose Wheeled Vehicle (HMMWV) mounted radars and a communications and control suite (TPN-3) . It will provide an all-weather ATC capability for an expeditionary airfield or forward operating base.

## Operational Impact

The ASPARCS will provide a HMMWV-mounted, state-of-the-art ATC surveillance and precision approach radar system that significantly reduces tactical and strategic lift requirements, which is self-mobile and

does not rely on material handling equipment. The system will be interoperable with other CAC2S applications, utilize common hardware and software, and be capable of functioning as an ACE command and control (C2) node. This program provides a dynamic expeditionary ATC radar capability that can be deployed in a package of two C-130 equivalents.

## Program Status

ASPARCS Initial Operational Capability (IOC) is planned for FY06 . The Full Operational Capability (FOC) is planned for FY10.

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<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	2	2
<b>Developer/Manufacturer:</b>		
Raytheon Integrated Defense Systems		
San Diego, CA		



# Complementary Low Altitude Weapon System (CLAWS)



## Description

The Complementary Low Altitude Weapon System (CLAWS) is a mobile, rapidly deployable, high-firepower, all-weather, standoff air defense system. CLAWS is designed to defend Marine Expeditionary Forces (MEFs) and naval forces from attack by cruise missiles, fixed- and rotary-wing aircraft, and unmanned aerial vehicles (UAVs). The system consists of a launcher integrated with the Advanced Medium Range Air-to-Air Missile (AMRAAM) on a High Mobility Multipurpose Wheeled Vehicle (HMMWV) platform, missile interface equipment, remote terminal units, a three-axis geographic position system (GPS), GPS receiver, Single-Channel Ground and Airborne Radio System (SINCGARS), and a reloading device.

## Operational Impact

Highly mobile and extremely lethal, CLAWS extends the Marine Air-Ground Task Force (MAGTF) commander's 3-D defenses. Currently, Stinger/Avenger systems provide effective close-in, low-altitude air defense for the commander against threat aircraft and UAVs. CLAWS provides anti-cruise missile capabilities, possesses the mobility and lethality needed to support MAGTF operations, and fills gaps in naval air defense coverage during extended littoral operations.

## Program Status

CLAWS is an Acquisition Category III program. CLAWS Block O is scheduled to field in FY 05

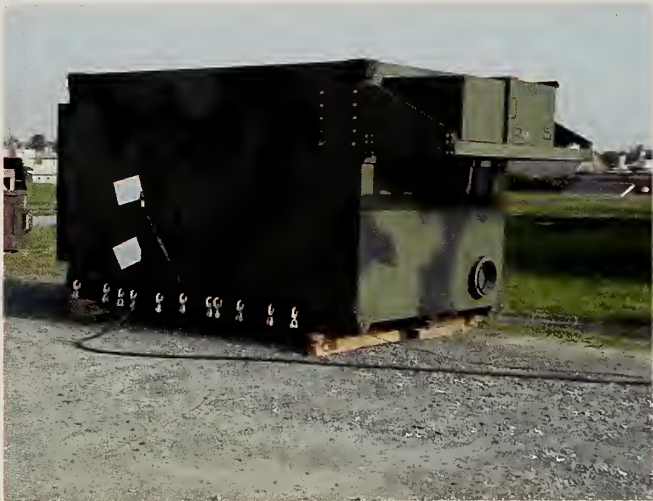
<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	2	2
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### Developer/Manufacturer:

Raytheon Integrated Defense Systems,  
Bedford, MA

# Direct Air Support Central Airborne System (DASCAS)



## Description

The Direct Air Support Central Airborne System (DASCAS) consists of one shelter that can be mounted in specially modified KC-130F/R/T aircraft or the bed of an M923/925 or Medium Tactical Vehicle Replacement (MTVR) truck. Seven operators within the DASCAS can select from seven radios—three ultra-high frequency, two high frequency, one very-high frequency, and one satellite communication (SAT-COM). The DASCAS is a replacement for the AN/UYQ-3A. Its function is to complement the AN/MRQ-12 Communication Interface System by performing the air mission for the Direct Air Support Center (DASC). The DASCAS can also be used as a forward element of the DASC and, when necessary, can assume deep-battle management functions. There are 10 AN-UYQ-3As within the Marine Corps that will be replaced by the DASCAS.

## Operational Impact

The DASCAS will augment the ground-based DASC as a principle agency for the coordination and control of offensive air support operations. The DASCAS can operate in either an autonomous mode or in conjunction with other control elements of the Marine Air Command and Control System. The fielding of the upgraded DASCAS will not cause any doctrinal changes in the DASCAS function.

## Program Status

The DASCAS received a favorable Milestone C, full-rate production decision in December 2003. DASCAS production began in FY 2003. Full operational capability will be achieved by the fourth quarter of FY 2005 with 10 systems. Future modifications to the DASCAS will allow the system to be used in the KC-130J as an initial step toward a Common Aviation Command and Control System (CAC2S) based airborne command and control (C2) node.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	5	0
<b>Developer/Manufacturer:</b>	Naval Surface Warfare Center Division, Crane, IN TBD	



# Theater Battle Management Core System (TBMCS)

## Description

TBMCS is an air war planning tool for the generation, dissemination, and execution of the Air Tasking Order/Airspace Control Order (ATO/ACO) mandated by the Chairman, Joint Chiefs of Staff. The host system resides with the Aviation Combat Element (ACE) commander in the Tactical Air Command Center (TACC), with remotes located throughout the MAGTF to support dynamic mission updates. It is the principal aviation command-and-control system with joint oversight.

## Operational Impact

TBMCS is the principal aviation command-and-control system within the TACC. It is a key resource for generating, disseminating, and executing the ATO during joint or coalition operations and contingencies.

## Program Status

TBMCS versions 1.1 and 1.1.1 are currently fielded within the joint services (v1.1 with the Marine Corps and Navy). Research and development efforts are ongoing to upgrade TBMCS from a SUN UNIX environment to a Windows 2000/web-based environment with TBMCS v1.1.3. Government testing of v1.1.3 is scheduled for the second through fourth quarters of FY 2004, with the release of v1.1.3 anticipated late in the fourth quarter of CY 2004. Fielding of v1.1.3 within the Marine Corps will refresh the hardware and infrastructure technology of current equipment. Additional versions of TBMCS are scheduled yearly.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	8	8
<b>Developer/Manufacturer:</b>	USAF integration contractor: Lockheed Martin Mission Systems, Colorado Springs, CO	

# Ground/Air Task Oriented Radar (cont.)

## Description

The Ground/Air Task Oriented Radar (G/ATOR) has four incremental deliveries. G/ATOR is an expeditionary, HMMWV-based single material solution to fill the Multi-Role Radar System (MRRS) and Ground Weapon Locating Radar's (GWLR) operational requirements.

Increment I is a medium-range Air Surveillance radar used to detect and track aircraft, cruise missiles, and Unmanned Aerial Vehicles (UAVs). The system will serve as a gap-filler radar by providing three-dimensional coverage of those areas out of view of the AN/TPS-59(V)3 due to line-of-sight limitations. The radar is intended to replace all the missions currently associated with the AN/TPS-63 and AN/MPQ-62 radars.

Increment II provides the next-generation ground weapon locating radar. The G/ATOR will replace the AN/TPQ-46A as the Marine Corps' hostile indirect fires target locating system. The primary mission of the G/ATOR, employed in the counter fire role, is to locate mortar, artillery, and rocket threats and provide accurate location information to friendly counter fire weapons. The secondary role of the counter fire G/ATOR is to provide "did hit" data to friendly weapon systems for adjust fire and battle damage assessment. Increment III will improve upon Increment I's air mission capabilities.

Enhancements include: Advance Combat ID circuitry and software (Non Cooperative Target Recognition), integrated Cooperative Engagement Capability/ Composite Tracking Network, advanced ECCM capabilities (Decoys), and Radar Environmental Simulator, as well as

Integrated Data Environment capabilities. Any hardware improvements associated with Increment III will be incorporated into radars delivered under Increment II, as well. Increment IV will add Air Traffic Control functionality and replace the AN/TPS-79 radar.

## Operational Impact

G/ATOR will have the responsiveness needed to detect, identify, and track enhanced, low-level air-breathing targets, as well as indirect fire threats during the execution of all Expeditionary Maneuver Warfare (EMW) operations. In addition, the radar will be capable of cueing and reporting on targets detected within its coverage limits to designated air and ground command-and-control agencies. The reduced logistical footprint of the radar will enhance the capabilities of MACCS and artillery regiments in support of all phases of MAGTF operations. It will possess the mobility required to keep pace with supported maneuver elements and will complement the Marine Corps' long-range radar, the AN/TPS- 59(V)3, by providing accurate low-level tracks. The ground and air mission capabilities provided in this single system gives an operational flexibility previously unheard of to the MAGTF commander.

## Program Status

G/ATOR Increment I is in pre-Milestone B Concept Development, which is currently scheduled for 1st Quarter FY 05. IOC is scheduled for 4th Quarter FY 2010, with FOC in FY 2016.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	0
<b>Developer/Manufacturer:</b>	TBD	



# Single Integrated Air Picture (SIAP)

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## Description

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The Single Integrated Air Picture (SIAP) is the air component of the Common Tactical Picture (CTP) that is generated and distributed by the various sensors and command-and-control systems that make up the Joint Data Network (JDN) for the Marine Corps. This program funds the integration of software and other coordinated support to ensure all systems effected meet the joint demands for a SIAP based on feeds and interpretation. Current sensor feeds come from the AN/TPS-59, AN/TPS-63, and the AN/TPS-73 radars. Current command-and-control systems are the AN/TYQ-23 Tactical Air Operations Module, Multi-Source Correlation System, AN/TSQ-131 Command and Control Sub-System, and the Air Defense Control Platform. Future systems include the Common Aviation Command and Control System (CAC2S), Complementary Low Altitude Weapons System (CLAWS), and Ground/Air Task Oriented Radar. The primary means of sharing the SIAP is through the components of the Joint Tactical Information Data System (TADIL J), which feeds the JDN. However, sensor data will be shared among systems implementing the SIAP Integrated Architecture Behavior Model (IABM) via a peer-to-peer network.

## Operational Impact

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The anticipated improvements produced by SIAP will enhance the capabilities

of our current and future command and control systems and aviation platforms. A CTP that is reliable and accurate will provide a significant improvement in our ability to employ our aviation assets and increase our combat effectiveness, while preserving our warfighting assets.

## Program Status

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Fixes to the SIAP are being approached using a spiral development system supported by a series of block improvements. Block 0 fixes have been implemented in the Marine Corps systems that require them, such as the Tactical Air Operations Module. Block I engineering tasks will be based on model-driven architecture, which will be used to produce an integrated architecture (IA) database. The Joint SIAP System Engineering Organization (JSSEO) will use the IABM to produce a common platform-independent model (PIM), which all services will use to develop a platform-specific model (PSM) for integration into their open architecture systems. PIM 05, which is due to be released in late FY 2005, will be the first PIM developed.

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## Procurement Profile:

Current funding profiles allocate funding through FY 2008 to support the continued spiral development of the program.

## Developer/Manufacturer:

No specific contractor. SIAP-related funds are primarily provided to other supported programs.

## MAJOR ACQUISITION PROGRAMS

# Combat Service Support Element Programs

### Part 4

## Family of Construction Equipment

### Description

The Marine Corps Family of Construction Equipment encompasses a wide variety of apparatus, ranging from heavy earth-moving machinery to small excavation vehicles. It includes the D7G bulldozer (with ripper and winch), Scraper 621B wheeled hydraulic excavator, small 1155 bucket loader, 1150 angle-blade bulldozer, road grader 130G, runway sweepers, backhoe loaders, engineer equipment trailers, and 260 CFM compressors.

### Operational Impact

The Family of Construction Equipment provides the Marine Air-Ground Task Force (MAGTF) with the ability to conduct mobility, survivability, and general and civil engineering tasks in support of operating forces. Examples include building airfields, emplacing pads for vertical/short take-off and landing (V/STOL) aircraft, clearing landing zones, creating fuel berms, and general construction.

### Program Status

The Family of Construction Equipment program maintains the Marine Corps'

construction capability. As such, various items are replaced as determined appropriate by the life cycle manager, Program Manager Engineer Systems. Specific items may be managed as acquisition or abbreviated-acquisition programs. However, there are several acquisition programs in progress at any point in time.

**Procurement Profile:** FY 05 FY 06

**Quantity:** Various Various

### Developer/Manufacturer:

D7G bulldozer, road grader/scrapper,  
wheeled tractor, backhoe loader:

Caterpillar Defense and Federal Products,  
Mossville, IL

### Ultimate Building Machine:

MIC Industries, Elton, PA

### Sweeper:

Elgin Sweeper Company, Elgin, IL

260 CFM compressor: Ingersoll-Rand  
Company, Monksville, NC

### Vibratory roller/compactor:

Caterpillar Paving Products, Champlin, MN

1150 angle-blade bulldozer and

1155 bucket loader: TBD



# Family of Material Handling Equipment

## Description

The Marine Corps Family of Material Handling Equipment encompasses a wide variety of material-handling assets, ranging from light forklifts to heavy cranes and container handlers. Specific systems include the rough-terrain container handler; extended boom forklift; light-capability, rough-terrain forklift; high-speed, high-mobility crane; light, rough-terrain crane; mobile welding equipment; and, multi-purpose, rubber-tired articulated tractor.

## Operational Impact

Procurement of these systems will ensure that Combat Service Support Elements (CSSEs) have the ability to support the scheme of maneuver and logistical requirements of their Marine Air-Ground Task Force (MAGTF).

## Program Status

The Family of Material Handling Equipment program maintains the Marine Corps' material handling and transportation support capability. As such, various

items are replaced as determined appropriate by the life cycle manager, Program Manager Engineer Systems. Specific items may be managed as acquisition or abbreviated-acquisition programs. However, there are several acquisition programs in progress at any point in time.

**Procurement Profile:** FY 05 FY 06

**Quantity:** Various Various

### Developer/Manufacturer

**Extended boom forklift:**

JLG Industries, Inc., McConnellsburg, PA

**Light-capability, rough-terrain forklift:**

Terex American Crane, Wilmington, NC

**Multi-purpose, rubber-tired, articulated-steering tractor:**

John Deere, Davenport, IA

**Rough Terrain Crane:** TBD

**Rough Terrain Container Handler:**

Kalmar LLC, San Antonio, TX

**Tactical Welding Shop:**

Power Manufacturing, Covington, TN

# Logistics Vehicle System Replacement



## Description

The Logistics Vehicle System Replacement (LVSR) will replace the current Marine Corps heavy-tactical wheeled vehicle, the Logistics Vehicle System (LVS). As the Marine Corps' heavy-tactical distribution system, the LVSR will transport bulk liquids (fuel and water); ammunition; standardized containers; bulk, breakbulk, and palletized cargo; and, bridging equipment. The vehicle will also perform heavy wrecker/recovery missions, and tow engineer equipment and combat vehicles with the M870A2 semi-trailer. The LVSR will be employed throughout the Marine Air-Ground Task Force (MAGTF) in the Force Service Support Group (FSSG), Marine Divisions (MAR DIVs), and Marine Aircraft Wings (MAWs).

## Operational Impact

To successfully accomplish its mission, MAGTFs require a heavy ground-logistics distribution system that is highly mobile, efficient, extremely reliable, and flexible. This system must be capable of operating over increased distances, with increased payloads, to meet the demands of *Expeditionary Maneuver Warfare (EMW)*. The LVSR will rapidly distribute all classes of supply, while including a self-loading/unloading capability to reduce dependence on external material-handling equipment.

## Program Status

Two System Development and Demonstration (SD&D) Phase Contracts were awarded in March 2004 for the design, build, and test of six prototype LVSR cargo variants. Prototypes will be delivered for Developmental Testing (DT) in March 2005. Upon successful completion of DT and final selection of one production contractor, 20 low rate initial production vehicles will be procured during FY 2006 for First Article Test (FAT) and Operational Test and Evaluation (OT&E).

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	0	20
<b>Developer/Manufacturer:</b>	TBD	



# Tactical Water Purification System

## Description

The Tactical Water Purification System (TWPS) is a skid-mounted, generator-powered system capable of producing potable water from a broad range of water sources-such as fresh, brackish, salt, and Nuclear, Biological and Chemical (NBC) contaminated water source-at a rate of 1,200-1,500 gallons per hour (GPH) in expeditionary environments. TWPS can be transported by highway, rail, sea, and air transport modes. The TWPS will replace the aging 600-GPH Reverse Osmosis Water Purification Units (ROWPUs) at a one for two ratio.

## Operational Impact

The TWPS will be used in the purification of salt water in more than 75 percent of its operations. Water production in an expeditionary setting is particularly critical to Marine Corps operations. The TWPS will be employed in pairs, as a direct asset within the Engineer Support Battalions, Combat Service Support Detachments, Forward Combat Service Support

Attachments, and Marine Wing Support Squadrons in support of MAGTF operations. TWPS will be integrated with the Family of Water Supply Support Equipment to provide water support for combat forces throughout the theater of operation. This capability provides the commander with options that will not tie down forces to specific locations or force them to rely on host nation support.

## Program Status

The current authorized acquisition objective is 243 TWPS. The program is currently funded for procurement during the FY 02 to FY 07 time period. The TWPS successfully completed Initial Operational Test and Evaluation (IOT&E), and will proceed into Full Rate Production (FRP) production during third quarter FY 04.

**Procurement Profile:** FY 05 FY 06

**Quantity:** 26 55

### Developer/Manufacturer:

SFA Inc., Frederick Manufacturing Division,  
Frederick, MD

# MAJOR ACQUISITION PROGRAMS

## Other MAGTF Support Programs

### Part 5

## Family of Field Medical Equipment

### Description

The Family of Field Medical Equipment consists of blocks of medical material configured to provide health services support to Marines in the combat environment. There are 25 various configurations called Authorized Medical/Dental Allowance Lists (AMAL/ADAL), covering a wide spectrum of health services in support of a Marine Air-Ground Task Force (MAGTF). The main components of the AMAL/ADAL are laboratory, X-ray, aid station, pharmacy, operating room, forward resuscitative surgery, shock/surgical team, ward, preventive medicine, environmental supplements, field dental operatory, NBC (Nuclear, Biological, Chemical) medications, and bio-medical equipment repair. There are 2,763 of these various blocks in the Marine Corps inventory with an estimated total cost of \$75 million.

### Operational Impact

AMALs and ADALs provide material for echelons I and II health service support to the MAGTF. Lack of this capability would result in unnecessary loss of life or

limb for injured and sick Marines on the battlefield, and a marked degradation in combat effectiveness. AMALs and ADALs are stored at strategic locations, ready for deployment at a moment's notice. They contain equipment and consumables at a level that reflects current casualty rates and requirements for 60 days in a combat environment.

### Program Status

AMALs/ADALs are in a constant state of review and update to reflect changes in industry practices and standards of health care. The Marine Corps Systems Command also schedules entire systems reviews on a three-year cycle to discuss capabilities and concepts of employment, and translate them to material requirements.

<b>Procurement Profile:</b>	FY 05	FY 06
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<b>Quantity:</b>	upgrades	8	8
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### Developer/Manufacturer:

Upgrades will be provided by various manufacturers, distributors, and prime vendor contractors throughout the United States.



# Theater Medical Information Program (Maritime)

## Description

Theater Medical Information Program (Maritime), or TMIP-M, provides clinical data collection and a data transport capability in a combat or hostile environment involving deployed forces. TMIP-M is a component of TMIP, which is a Department of Defense-directed joint program. TMIP-M, which includes both the Navy and Marine Corps, provides medical information processing capabilities to medical staffs in-theater, as well as medical planners and command-and-control elements at all echelons. TMIP-M provides a full suite of user-configurable support for all aspects of theater health services from patient-encounter data to medical logistics. TMIP-M will become the medical component of Global Combat Support System-Marine Corps (GCSS-MC).

## Operational Impact

TMIP-M provides improved casualty tracking and treatment, and medical supply management. The majority of the data-entry and manipulation will be done by corpsmen, but all medical department personnel will interface with the system in some way.

## Program Status

The program will be developed in two blocks. Pending successful evaluation during FY 05, the Marine Corps will field the Block I product to the health service support and medical logistics communities between FY 05 and FY 06.

<b>Procurement Profile:</b>	FY 05	FY 06
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### Quantity:

Laptops:	268	555
PDA's:	700	1,400

## Developer/Manufacturer:

Software and all associated software life-cycle support is provided by the TMIP-J program office.

# Family of Incidence Response Systems

## Description

The Family of Incidence Response Systems (FIRS) consists of equipment, systems, and services designed to provide federal, state, and local incident-response forces with the capabilities they need to effectively respond to a terrorist attack involving nuclear, biological, and chemical (NBC) and radiological agents, as well as high-yield explosives. FIRS is a “roll-up” program that fields more than 65 technologies to Marine Corps Chemical Biological Incident Response Forces (CBIRFs) and Marine Expeditionary Units (MEUs).

## Operational Impact

The FIRS provides primarily commercial-off-the-shelf (COTS) technologies to meet the operational needs of Marine Corps responder forces. This commercial equipment is used in major cities’ Hazardous Material Units in the same operational environment that the

4th Marine Expeditionary Brigade (Anti-Terrorism) and CBIRF will operate. FIRS employs the same equipment as the Enhanced MEU NBC Capability Sets. Support for FIRS equipment is performed through a contractor logistics support arrangement.

## Program Status

The FIRS program maintains an aggressive market research program to monitor commercial development. The market research program ensures that the CBIRF and the MEUs are provided leading-edge technologies for operational readiness. In conjunction with the CBIRF, the FIRS program office invites vendors to display their technologies at the CBIRF on scheduled Technology Demonstration days, which are focused on the operational mission of the CBIRF. The FIRS program office also manages the contractor logistics support that provides critical technical and operational training to the CBIRF and the MEUs.

**Procurement Profile:** FY 04 FY 05

**Quantity:** Various Various

**Developer/Manufacturer:**

**Logistics Support Prime Vendor:**

Battelle Memorial Institute,  
Columbus, OH and Stafford, VA

**Subcontractors:**

Equipment manufacturers throughout  
the United States



# Transportation Coordinator's Automated Information for Movement System II

## Description

Transportation Coordinator's Automated Information for Movement System II (TC-AIMS-II) is a joint, Army-led, Acquisition Category I(A)M automated information system, which is used for unit deployment planning and execution, traffic management, and movement control and coordination. TC-AIMS II supports the Department of Defense mission areas of deployment and mobility.

## Operational Impact

When fielded, TC-AIMS II will facilitate the deployment, sustainment, and redeployment of Marine Corps forces, as well as any joint forces assigned to a Marine Corps-led Joint Task Force (JTF). In theater, the system facilitates reception, staging, and forward movement.

## Program Status

TC-AIMS II is currently in the Test and Evaluation phase for Block Two. Operational testing for TC-AIMS II was held in April and May 2004 for Army and Navy units. Marine Corps testing has not been scheduled at this time. Testing will occur in Stafford, VA, when scheduled.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	Various	Various
<b>Developer/Manufacturer:</b>	Dyncorp, Springfield, VA	

# Lightweight Helmet

## Description

The Lightweight Helmet (LWH) is a direct replacement for the standard issue PASGT helmet. The LWH has improved ballistic protection capability over the existing PASGT helmet and will be 8 ounces lighter. The LWH also promotes enhanced combat effectiveness through greater comfort and improved fit. It features an improved suspension system that will reduce stress and fatigue.

## Operational Impact

The LWH provides protection in various operating environments from fragmentation projectiles, as well as providing 9mm small arms protection. Overall fragmentation and ballistic protection will

exceed that of the current PASGT helmet.

## Program Status

The LWH received Milestone C approval in May 2003. Initial operational capability occurred in second quarter FY 2004, with full operational capability slated for first quarter FY 2009.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	25,000	12,200
<b>Developer/Manufacturer:</b>	Gentex Corporation, Carbondale, PA	



# All-Purpose Environmental Clothing System

## Description

The All-Purpose Environmental Clothing System (APECS) is a product improvement to the second-generation Extreme Cold Weather Clothing System. Improvements include a 10- to 15-percent weight reduction; softer, quieter, and more water-resistant material; and, reduced infrared signature. The parka and trousers will provide improved protection for the Marines in cold/wet or cold/dry environments. The parka has improved waterproof closures, and the orientation of pockets has been modified to be more compatible with ancillary equipment. The parka also has a rolled and stowed hood, and reinforced elbows. The trousers have cargo pockets, belt and suspender loops, and knee and buttocks reinforcement patches. Improved waterproofing features, reduced weight, reoriented pockets, and the Marine Corps new camouflage pattern have also been incorporated into the design.

## Operational Impact

APECS provides Marines with an improved outer protective layer, permitting greater ease of movement, protection, and wearer survivability.

## Program Status

Initial operation capability took place in second quarter FY 2004. Full operational capability is anticipated by first quarter FY 2008. A new solicitation, with specific small business quantities, was awarded during fourth quarter FY 04.

**Procurement Profile:** FY 05 FY 06

**Quantity:** 32,000 26,000

**Developer/Manufacturer:**

Propper International, St Charles, MO  
Small Business to be determined.

# Improved Load Bearing Equipment

## Description

The Improved Load Bearing Equipment (ILBE) is designed to provide a durable and lightweight means for the deployed Marine to transport his or her individual combat clothing and equipment. Major proposed improvements include durability, comfort of wear, reduced system complexity, reduced system weight and sustainability, and greater integration with the Outer Tactical Vest.

## Operational Impact

An improved load-bearing system will result in less fatigue and more combat effectiveness during the execution of assigned missions.

## Program Status

Milestone C approval for full-rate production of the pack occurred in August 2003. The equipment was fielded in January 2004. A contract award for the Assault Load Carrier (ALC) element took place in second quarter FY 2004, with production starting in third quarter FY 2004. (The existing Fighting Load Carrier will continue to be used until the ALC is fielded.) Initial operational capability was achieved in fourth quarter FY 2004. Full operational capability is slated for first quarter FY 2009.

Procurement Profile:	FY 05	FY 06
Quantity:	35,000	23,000
Developer/Manufacturer:	Propper International, St Charles, MO	
Assault load carrier:	TBD	



# Small Arms Protective Insert



## Description

The Small Arms Protective Insert (SAPI) consists of interchangeable ceramic plates that are inserted into the front and back of the Outer Tactical Vest to increase a Marine's protection against small arms fire and fragmentation projectiles. SAPI is capable of defeating multiple hits from small arms fire of up to 7.62mm caliber at muzzle velocity.

## Operational Impact

SAPI greatly increases the survivability of Marines on the battlefield. The lives of numerous Marines and soldiers were reported saved during Operations Enduring Freedom and Iraqi Freedom as a result of using SAPI plates.

## Program Status

Procurement to the original acquisition objective of 133,000 (two plates per Marine in the Ground Combat Element) was completed during fourth quarter FY 2003. As a result of feedback from operating forces in Operation Iraqi Freedom, the acquisition objective has been raised to 267,000. A new competitive contract was awarded in fourth quarter FY 04.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	18,000	12,000
<b>Developer/Manufacturer:</b>		
<b>Initial Contractor:</b> Simula Safety Systems, Phoenix, AZ		
<b>New Contractor:</b> TBD		

# Advanced Mine Detector

## Description

The Advanced Mine Detector (AMD) is a battery-operated, hand-held mine detection device consisting of an electronics control unit with an integrated power supply, processor, radio frequency (RF) antenna, and a hand-held wand with sensor and controls. The AMD combines metal detection and ground-penetrating radar to detect all known metallic and low-metallic landmines.

## Operational Impact

AMD is a replacement for the aging AN/PSS-12 metallic mine detector, which uses only metal detection technology.

## Program Status

The AN/PSS-14 has been accepted as the material solution to the AMD Operational Requirements Document (ORD). The fielding of 78 AN/PSS-14s took place in February 2004, after being identified as an urgent UNS requirement for Operation Iraqi Freedom.

<b>Procurement Profile:</b>	FY 05	FY 06
<b>Quantity:</b>	10	30
<b>Developer/Manufacturer:</b>	CyTerra Corporation, city/state?	



# Defense Integrated Military Human Resources System

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## Description

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The Defense Integrated Military Human Resources System (DIMHRS) is a Department of Defense initiative to develop a joint-integrated pay and personnel management system. The Marine Corps is participating in this Navy-led initiative. DIMHRS will provide the military services and their components better command and control during peacetime, war, reservist and guard activation, and as commands move in and out of theaters around the world. DIMHRS will more effectively afford the pertinent and timely data for major decision-makers.

The DIMHRS Personnel and Pay (Pers/Pay) program will be a single, standard military system that supports military members of all services. It will collect, store, pass, process, and report personnel and pay data within a single database. DIMHRS (Pers/Pay) is an Acquisition Category I development effort that is being managed by the DIMHRS (Pers/Pay) Joint Program Management Office (JPMO), Space and Naval Warfare Systems Command Information Technology Center, New Orleans, LA. DIMHRS is scheduled to subsume many legacy systems, to include

functionality currently performed by the Marine Corps Total Force System (MCTFS).

## Operational Impact

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The DIMHRS will enhance fleet operations by offering greater capability in making personnel and pay data changes more quickly and efficiently. Additionally, DIMHRS will reduce data collection and reporting requirements, improving current business processes.

## Program Status

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The program is looking to enter Milestone C the end of fourth quarter FY 05, which is, dependent on the Secretary of Defense decision on program acceleration and the availability of funds to execute the new schedule.

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## Procurement Profile:

TBD

## Developer/Manufacturer:

Northrop Grumman Corporation,  
New Orleans, LA







## Current Operations and Lessons Learned



In 2004, the Marine Corps continued leading our nation's fight in the Global War on Terrorism (GWOT). Demonstrating the versatility of the Marine Air-Ground Task Force (MAGTF) to support the U.S. national security strategy, more than 70,000 Marines and their equipment redeployed to Iraq early

in the year. In March, an additional 35,000 Marines were deployed in support of Operations Iraqi Freedom and Enduring Freedom. Emphasizing the Corps' core capabilities of agility, flexibility and speed, 26,000 Marines with the I Marine Expeditionary Force (I MEF) deployed to Iraq within a one-month period to continue stabilization and security operations (SASO) as part of the GWOT.



## Current Operations



The spring deployment included Marines from the 11th Marine Expeditionary Unit (Special Operations Capable), or MEU (SOC), 24th MEU and 31st MEU (SOC) who served in Iraq, and Marines from 2nd Battalion, 8th Marines, HMLA-773(-), and the 22nd MEU (SOC) who served in Afghanistan. When their seven-month deployment ended in September, 20,000-plus Marines were deployed to replace them. The fall deployment included Marines from 3d Battalion, 6th Marines and various Marine Corps aviation units.

In 2004, Marines were not only crucial to operations in Iraq and Afghanistan, but in all four corners of the world. From the Horn of Africa to Haiti and the Philippines, Marines displayed the liveness and responsiveness of the MAGTF. Across the globe, Marines assumed diverse missions, which included maintaining a forward presence and security-cooperation deterrence in the Western Pacific and Southern Atlantic, conducting non-combatant evacuation and humanitarian assistance operations in Western Africa,

and providing natural disaster assistance and special-event security at home.

Throughout the year, numerous Fleet Anti-Terrorist/Force-Protection units, operating at home and abroad, demonstrated the versatility and dependability of Marine forces. Marines also supported civil authorities in myriad Homeland Security operations, such as providing security for the President's State of the Union Address and G8 Summit.

The adaptability and reliability of Marine forces were also highlighted in the II MEF deployment to Haiti, as MAGTF-8 conducted operations to stabilize the nation, provide security, support the provision of international humanitarian aid, and enable the transition to United Nations multinational efforts. MAGTF-8 was under orders to be prepared to conduct non-combatant evacuation operations to protect and evacuate U.S. citizens, designated host-nation citizens, and third-country nationals from Haiti.







In 2004, the Marine Corps was called upon, as in previous years, to participate in a wide range of operations in support of Homeland Security across the nation. Marines from both coasts fought and contained wildfires, including one adjacent to Marine Corps Base, Camp Pendleton, CA. Marines also supported hurricane relief efforts in Florida and other East Coast regions devastated by three back-to-back storms.

As 2004 drew to a close, the flexibility of the MAGTF was once again brought to bear



on one of the greatest natural disasters of the past 100 years. On December 26, a tsunami struck numerous nations in the Indian Ocean region. The devastation of 150,000-plus dead and widespread infrastructure damage led to the U.S. formation of Joint Task Force (JTF) 536 to assist in disaster relief operations. The CG of III MEF was tasked with forming the JTF, and Disaster Relief Assessment Teams from III MEF were immediately on station in Thailand, Indonesia, and Sri Lanka. To further assist in this effort, more assets were forward deployed from Okinawa to the affected areas, and Expeditionary Strike Group 5, made up of the 15th MEU(SOC), was deployed off the coast of Indonesia and Sri Lanka to further assist in relief operations. By year's end, MPSRON Squadron 3 from Guam was underway to the affected area, and Marines and members of the other armed forces were beginning this massive relief effort.

### Exercises

While the Marine Corps was participating in Operations Iraqi Freedom and Enduring Freedom, most training exercises





were cancelled, and participation in service exercises throughout the world was reduced. However, Marines from 3d Battalion, 25th Marines embarked aboard the USS *Tortuga* to participate in Commander, U.S. Joint Forces Command, UNITAS Exercise, engaging in a series of bilateral training exercises with regional partners in South America.

At home, the Marine Corps resumed limited service exercises, as forces redeployed to the continental United States. During this time, extensive stabilization and security operations (SASO) training was conducted for units deploying to the CENTCOM region. MEU (SOC) work-ups began to prepare the recently redeployed forces for scheduled and emergent deployments, and to evaluate individual and unit proficiency to maintain the operational dominance of the MAGTF across the spectrum of operations.

### **Counter-Drug Operations**

Throughout 2004, the Marine Corps continued to contribute to the nation's counter-drug effort, participating in

numerous missions in support of Joint Task Force-Six (JTF-6), Joint Interagency Task Force-East (JIATF-E), and Joint Interagency Task Force-West (JIATF-W). These missions were conducted on federal lands along the Southwest border of the United States and in several domestic "hot spots" that have been designated as high-intensity, drug-trafficking areas. Individual Marines and units are assigned to these missions to provide support to domestic drug-law enforcement throughout the country. Marine Forces Reserve executed the vast majority of these missions.





## Lessons Learned From Operation Iraqi Freedom II (OIF-II)

Continuing operations throughout Iraq have been characterized by a sea change in our missions and responsibilities, as compared to our initial incursion into the theater of operations for Operation Iraqi Freedom I (OIF-I). Although the major combat operations phase of the campaign to liberate Iraq has ended, Marines have been continuously engaged in stability and support operations requiring unremitting engagement with insurgent terrorist factions. As we conduct our “three block war,” we are continually learning, and reconfirming, lessons relevant to stability and support operations.

It has become imperative that we shorten the time between problem identification

and solution, as we prosecute the Global War on Terrorism (GWOT). Many of the problems identified during OIF-I have been addressed and have either already been solved or are being remedied. The Marine Corps fielded many new weapon systems and items of equipment before and during the deployment of the First Marine Expeditionary Force (I MEF) for Operation Iraqi Freedom II (OIF-II). Some were in response to requests from the deploying forces, and others were advance-fielded by the Marine Corps Systems Command. A partial list includes:

Armor and armor kits for more than 3,000 I MEF tactical vehicles, the need for which came from many reports about the lifesaving/injury-mitigation of vehicle hardening, such as incidents involving improvised explosive devices (IEDs), wherein Marines proclaimed, “The metal saved my life!”;

Auxiliary body armor, which when fitted to the outer tactical vest (OTV), provides additional side and shoulder protection;

Advanced Combat Optic Gunsights (ACOG) and Rifle Combat Optics, that increase lethality of our riflemen, while reducing potential for collateral damage;







Position Location Information (PLI) equipment;

Counter-IED detection equipment;

Combat Identification (CID) equipment to prevent or mitigate fratricide;

Dust abatement equipment that assists in allowing aircraft (primarily rotary-wing) to safely land in dusty environments and expeditionary airfields;

Medium Tactical Vehicle Replacement (MTVR) center seats that allow Marines to face outboard, rather than inboard, when transported by truck;

Vehicle barrier nets to assist Marines at checkpoints by providing a non-lethal capability to stop vehicle threats; and,

Explosive ordnance detection capabilities, such as explosive protection suits for engineers, mine detection equipment, x-ray machines, and robotics.

### **Marine Corps Center for Lessons Learned**

The Commandant has established the Marine Corps Center for Lessons Learned (MCCLL) at the Marine Corps Combat

Development Command (MCCDC) under the auspices of the Expeditionary Force Development Center. The mission of the MCCLL is to collect, assess, manage, and disseminate knowledge that is gained through operational experience, exercises, and supporting activities to enable Marines to achieve higher levels of effectiveness, efficiency, and proficiency, and to provide information, analysis, and assessment of lessons learned—in support of Marine operating forces, as well as the Commandant in executing Title 10 USC responsibilities. To accomplish active data collection during an operation or major exercise, Marines shall be formed into MCCLL Detachments that can rapidly deploy to support commanders of Marine operating forces with capabilities to quickly identify, analyze, and assess lessons emerging from the operation.

### **Stability and Support Operations**

Stability and support operations are being conducted with political goals as the No. 1 priority. Units conducting stability and support operations are part of a larger operation, which has political implications







that may limit standard combat missions. Each participating organization must learn to accommodate the culture, values, and methods of operations of the other participants. The Marine Corps' job in stability and support operations is to ensure that existing conflict does not escalate and spread. Collateral damage, the injury or death of noncombatants, and the destruction of property caused by military operations erode the sense of legitimacy of these operations.

### **Flexibility**

Thus, flexibility is crucial in the Corps' wide range of capabilities to address changing threats. The first step is to break the cycle of impunity for those who commit criminal acts of violence. Stable democracies everywhere, including budding democracies in post-conflict states, must be rooted in the rule of law. Post-conflict states must provide their populations with security, stability, safety, and the assurance that transparent law enforcement and judicial processes provide the same protections and penalties for all citizens. They invariably need help in accomplishing this.

### **Force Flow**

For OIF-I, Marine forces arrived in theater on or before deadline, resulting in the Relief in Place/Transfer of Authority (RIP/TOA) being moved ahead five to 10 days.

One of the factors impacting the effectiveness of strategic force deployment was the tendency for commanders to request specific units, or types of units, instead of requesting a desired capability. Flexibility for the force planner can best be achieved by identifying the desired capability, which allows the planner to select the appropriate





unit based on availability, training, and readiness status, as well as other factors not visible to the theater forces.

One difficulty for theater forces was the rapidly changing combat environment, which forced a change and reprioritization of requirements. Another difficulty was the sometimes-tedious process of validating, revalidating, and challenging the validity of identified requirements, as the requests made their way up the chain of command. There were cases where the underlying rationale was not obvious, or the assumptions unknown, which led to a series of queries and responses between levels within the process. Additionally, there were resource constraints that resulted in shortfalls in desired capabilities, compromises, or alternative solutions. The Request for Forces (RFF) process had a significant impact on the effectiveness and efficiency of strategic deployment of forces. The process, as currently established, will not support the rapid, flexible deployment of a large joint force in a crisis situation. Because the process allows for the selective disapproval of specific units within the force, without providing the decision-maker the implications of the delayed arrival or elimination of that unit from the deploying force, there is considerable risk of failure due to the “law of unintended consequences.”

The Joint Operation Planning and Execution System (JOPES) incremental validation process is on a 24-hour cycle, which permits more responsive adjustments to changing requirements. The RFFs were typically reviewed on a weekly basis which, on several occasions, increased the timeline for approval of forces. While critical requirements could be submitted for review



off-cycle, many changes in requirements fell below the criteria to be considered “critical,” yet, nonetheless, required timely approval to allow the deployment process to continue at pace. The ad hoc manual tracking and management tools, which had to be developed to monitor the status of RFFs, were limited in their efficiency and created a labor-intensive process that was added to existing deployment planning management systems and processes.

### **Training and Preparation/ Training Transformation (T2)**

To accomplish stability and support operations, Marines need training in various skills and techniques before deployment to change their focus from “combat warriors” to “strategic Marines,” who will use force only in self-defense. Units normally require four to six weeks of specialized training. With prior planning, a training program can be developed that will assist commanders to prepare for these missions. Training and preparation for peacetime operations should not detract from a unit’s primary mission of training to fight and win in combat. The first requirement for



success in peacetime operations is the successful application of warfighting skills learned through normal military training.

Peacetime operations are not new and need not be treated as a separate task.

Some of the key skills required (and where lacking, may be identified as shortfalls) are: intelligence, increased communications, explosive ordnance disposal (EOD), military police, information operations, civil affairs, and linguists or reach-back translators. Accomplishing peacetime missions requires a thorough analysis of the active-Reserve force mix, as well as the allocation of high-demand/low-density troops and equipment.

### **Battlefield Contractors**

Over time, there has been a shift from employing forces composed primarily of active component units that operate independently to increased dependence on a mix of active and Reserve components, civilian contractors, and multinational forces in joint and combined operations. Civilian contractors are now performing combat service support missions in a variety of contingency environments, which historically have been the responsibility of

uniformed military forces. Since Operation Desert Storm, more and more contractors have supported deployed forces. The determining factor for using battlefield contractors must be the suitability and cost effectiveness of contractors for various functions. Other issues include security and vulnerability, rules of engagement, and standard operating procedures for coordination of contractor services in combat operations.

### **Equipment Condition and Impact of Operational Tempo on Equipment Service Life**

Overall equipment for OIF-II remains in good condition, including OIF-I back-loaded Maritime Prepositioning Force (MPF) equipment that did not go through a full maintenance cycle. High utilization rates will require equipment refurbishment and/or earlier replacement than originally programmed.

### **Continued Reliance on Reserves**

Integration of Reserve component forces continues to be essential to the success of the Marine Corps' total force. As with OIF-I, the investment made to achieve





increased readiness in the Reserves has been validated. Some of the issues that have emerged include: the criticality of integrated training between the Reserve and active components; the need to address the gap between table of equipment (T/E) and training allowance (T/A); the suitability of personnel based on the adequacy of their skills and experience; and, the long-term impacts on retention of current Reservists, as well as active-duty Marines who will separate and become potential members of the Reserve force.

### **Force Dispersion**

Force dispersion magnifies Command, Control, Communications, and Computers (C4) gaps. As observed in OIF-I, current operations suggest the need for increased networking, de-centralization, and standard business rules for information management to avoid overload of decision-makers and staff.



### **Measures of Effectiveness**

Measures of Effectiveness (MOEs) need to be operationalized. Many are currently tailored for headquarters use and are not focused on tactical units. Some of the supporting MOEs currently being monitored include:

Supply-volume flow—which supplies are sent out and which are not received;

Equipment readiness drive—which may affect training; and,

Personnel assignment process—which assignments fill Marine units vs. those that fill joint or liaison billets, or augment coalition positions.

### **Joint Processes**

The successes enjoyed during OIF-II can be attributed to the prior working relationships established during OIF-I, as well as the experience gained from the operation. Many standard, deliberate, joint processes continue to lag behind the operational tempo generated by engaged forces. Many are synchronized to sequential, procedural planning and not to the rhythm of a dynamic battlefield. Some of the delays that are linked to standards, organizations, and procedures, such as battle damage assessment (BDA), continue to be addressed and are constantly improving.

### **Close Air Support (CAS) and Forward Air Controllers (FAC)**

There are two very important and distinguishing characteristics of the Marine Corps Air-Ground team. No. 1: All Marines are Marines first. Being a pilot, infantry officer, or FAC is of secondary importance. Because we all “crawl out of the same fighting hole,” every Marine aviator knows first-





hand the challenges facing the ground-combat Marine. No. 2: There is no question about who is being supported within the Marine Corps. Although the Air Combat Element (ACE) can be employed as a maneuver element, it primarily supports the Ground Combat Element (GCE). ACE officers and Forward Air Controllers are not simply attached before an operation or exercise; rather, they are an organic part of the GCE and the planning process. It is not uncommon to have ACE commanders and planners meet and conduct concurrent planning with GCE counterparts.

The presence of Rotary Wing (RW) Forward Air Controllers (Airborne), or FAC(A)s, significantly increases ground FAC situational awareness. RW FAC(A)s are also highly effective in coordinating fixed wing (FW) CAS, allowing the ground FAC to concentrate on integrating aviation maneuver elements with the ground scheme of maneuver. The use of forward operating bases (FOB) and forward arming and refueling points (FARP) have significantly reduced response times, and extended the operational reach of platforms providing CAS.



In a closely linked role, RW escort of convoys has provided near-instantaneous close air support and significantly increased convoy survivability. RW CAS aircraft remain susceptible to rocket-propelled grenades (RPG) that are fired at short range and man-portable surface-to-air missiles (MANPAD) that are commonly employed during military operations in urban terrain (MOUT).

Fixed Wing (FW) CAS is the method of choice in the MOUT environment due to increased survivability and the ability to employ precision-guided munitions

(PGM), such as laser-guided bombs (LGB) to destroy buildings. Target designation is a critical factor, and FW FAC(A) proved to be an invaluable, survivable resource as a set of additional “eyes” over the target and engagement area.

### **Tactical Air Control Parties (TACP)**

The requirement to conduct continuous operations underscored the need for additional air officers (AO) at the battalion, regiment, and division levels. Every company needs a FAC for the same reason. There has also been a need for TACP to support

convoys. These requirements indicate a heavy demand for FACs and AOs—an issue that is currently being addressed. TACP equipment needs include target location and designation systems, as well as night optics. Ground commanders and FACs have identified a need for increased Type II CAS training and the ability to incorporate new tactics, training, and procedures (TTP) into doctrinal publications.

### **Coalition Interoperability**

Coalition interoperability continues to improve. The relationships and cooperation that have been realized still must be tempered with various operational realities. For example, mission approval authority and Rules of Engagement (ROE) vary by country; U.S. joint processes are complex even for U.S. forces, much less our coalition partners; and, equipment compatibility, connectivity, and capability differences exist across the spectrum among coalition partners. These operational concerns also suggest the possible need for provisional U.S. equipment for willing partners, and plans to allot space on pre-positioning ships and sea-based platforms to provide similar equipment to our partners.



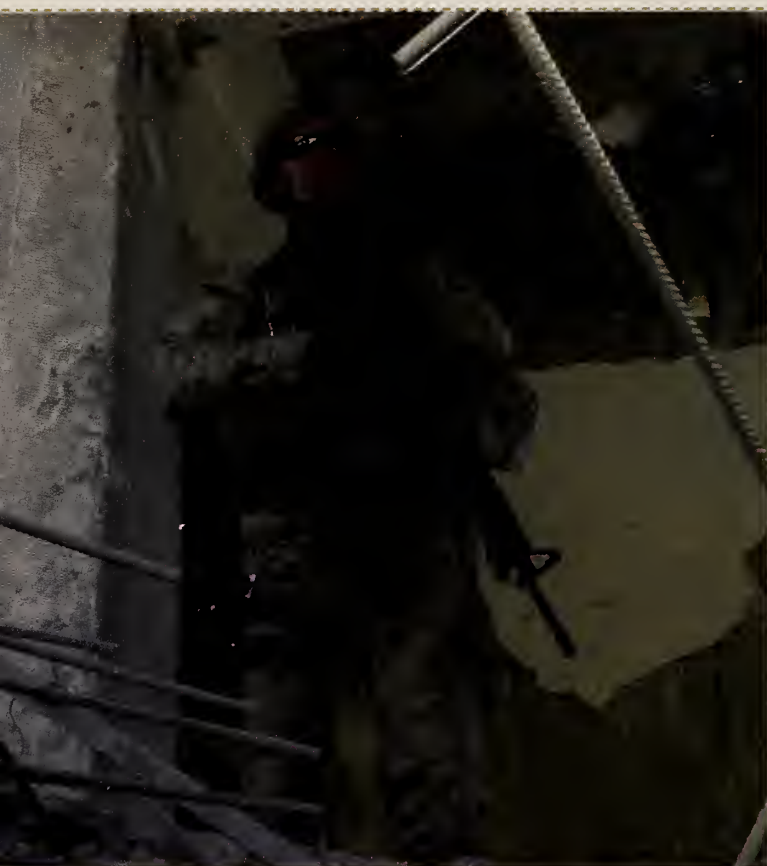




There is a need for improved multinational training for U.S. and coalition forces. Obviously, we need increased dialogue with potential coalition partners on emerging concepts, evolving processes, and TTPs, as we strengthen habitual relationships and mutual understanding. Much of the latter can be accomplished via formal professional military education (PME) and informal or ad hoc arrangements. There also is a recognized need for robust combined training and staff/liaison officer exchanges, plus cooperative range and facility use to increase exposure to different locations and environments. Multinational forces bring unique operational experiences and capabilities to the fight, and we need to exploit these critical capabilities, such as SASO; nuclear, biological, chemical (NBC) warfare; mine clearing; force protection; and, others. It is extremely important to cross-train immediately prior to employment, if coalition operations at the tactical level are to be successful.

### **Tactics, Techniques, and Procedures**

OIF-II has become a “TTP war” with Marines continually working to get inside the enemy’s decision cycle and to adapt to changing enemy tactics. To meet this need, the 1st Marine Division established a website for rapid TTP dissemination and exchange of ideas, on subjects such as “what works” and “new approaches to defeating the enemy.” This arrangement has provided a rapid response to operational requirements and has provided input to the Marine Corps System Command (MARCORSYSCOM) forward liaison officer and the Expeditionary Force Development Center (EFDC) for continuous dialog/feedback with I MEF and the major subordinate commands (MSC). This has also resulted in a more responsive generation of Universal Needs Statements (UNS) and Urgent UNS.



### **Connectivity, C2, and Information Management**

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Force dispersion in OIF-II has magnified the C4 gaps identified in OIF-I. Issues that have already been identified and are being examined include: the need for more short-range and beyond-line-of-sight (BLOS) communications for both HHQ and small unit operations, in some cases down to squad/individual levels; additional tactical unmanned aerial vehicles (TUAV) for long-dwell, large-area coverage; increased networking, de-centralization, and standard business rules for information management; and, personnel, equipment, and supply in-transit visibility.

With the extreme speed of global information distribution, e-mails can very rapidly reach a global audience as they are passed on from one Internet user to another. A careless comment in an e-mail from the frontlines, intended as a private commentary on a potentially sensitive

subject, can rapidly become known to a global audience. More troubling is the potential for these communications to be modified en route or even be completely fabricated as a message created from our forward deployed forces. The potential for “urban legends” that need to be debunked creates an additional burden on those responsible for ensuring a coherent strategic communications message.

### **Command Challenges in Campaign Planning and Execution**

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At all levels, from the strategic to the tactical, real challenges exist that commanders must consider as we conduct operations in multi-national coalitions. Prime among these is the building of coalitions—integrating different levels of partnership. Any uncertainty that exists in the planning stage results in reduced reliance on coalition volunteers. Because mission approval authority varies by nation, command relationships and ROE must be thoroughly understood by all parties.

There is a need for niche capabilities to fill gaps in areas such as NBC, mine clearing, MOUT, and force protection. Information sharing and interoperability must be addressed, particularly with regards to access of classified networks and planning tools.

### **Impact of Transformation on Future Coalition Operations**

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As U.S. forces continue to transform to meet future threats in the GWOT, our rapid deployment capability may drive the United States to more independent operations in the initial stages of campaigns to leverage our speed. Transformation may





be cost-prohibitive for some potential coalition partners and further aggravates equipment interoperability and compatibility issues.

This suggests the need for the United States to have provisional equipment for willing partners and to improve interagency coordination and liaison. There may still be a need to segregate State Department and/or CIA intelligence and information from some partners during political negotiations. Yet, we must increase dialogue with potential coalition partners on emerging Expeditionary Maneuver Warfare (EMW) concepts, while maintaining or increasing joint/combined training and exchange of staff/liaison officers. We will need to build habitual relationships, mutual understanding, familiarity with evolving processes, and TTPs—to name just a few examples.

## Epilogue

We have learned a lot about our organization, processes, systems, and equipment. But probably the most salient lesson that we have taken away is the absolutely essential need to continue building into our Marines the ethos, character, and skills that



enable them to take our imperfect systems and processes—sometimes using very old equipment, under conditions of uncertainty and peril, against a determined and deadly enemy—and convert those ingredients into victory.

# USMC Operations Matrix

DATE	LOCATION	MISSION
Oct 92 - Present	SE Asia	POW/MIA Accounting
Nov 00 - Present	Kosovo	Staff Augments
Sep 01 - Present	CONUS/ Guam/ Diego Garcia	Air Defense, Contingency Response
Dec 01 - Present	Kabul, Afghanistan	Embassy Security
Dec 01 - Present	Guantanamo Bay, Cuba	Security, Staff Augments
Jan 02 - Present	CENTCOM AOR Afghanistan, Uzbekistan, Kyrgistan	Combat Operations
Jan 02 - Present	PACOM AOR Phillipines	Security and Medical Augmentation
Nov 02 - Present	CENTCOM AOR Horn of Africa	Anti-Terrorist Operations and Theater Security Cooperation
Nov 02 - Present	EUCOM AOR Republic of Georgia	Georgian Security Assistance Program (GSAP)
Jan 03 - Present	CENTCOM AOR Iraq	Combat Operations
Oct 03 - Present	EUCOM AOR (PTDO)	NATO Operational Reserve Force
	EUCOM AOR Med Sea/Greece	EMIO/VBSS
	EUCOM AOR Niamey, Niger	Humanitarian Operations/Security Assistance Training

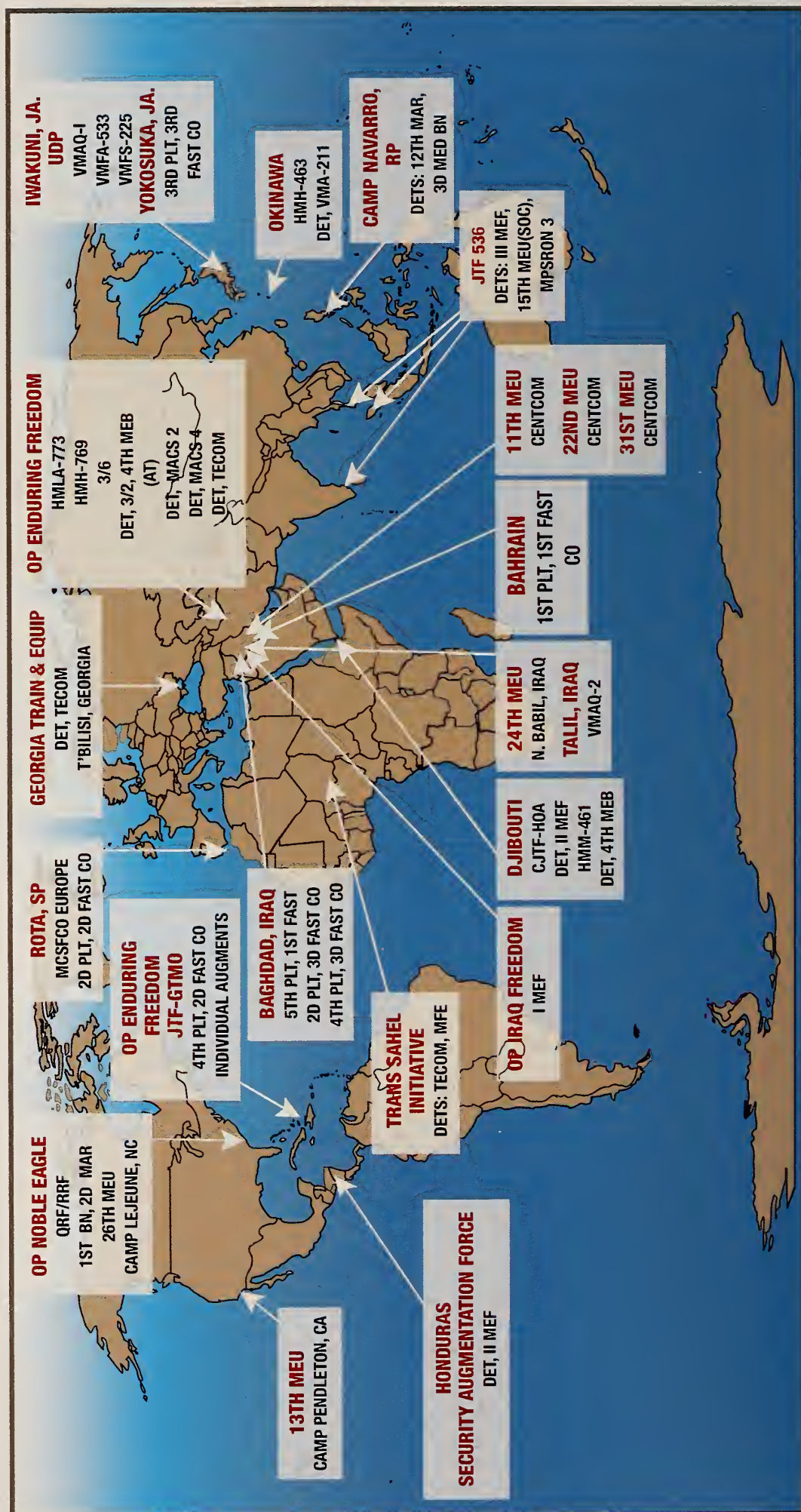


## FORCE

## DESCRIPTION OF ACTION

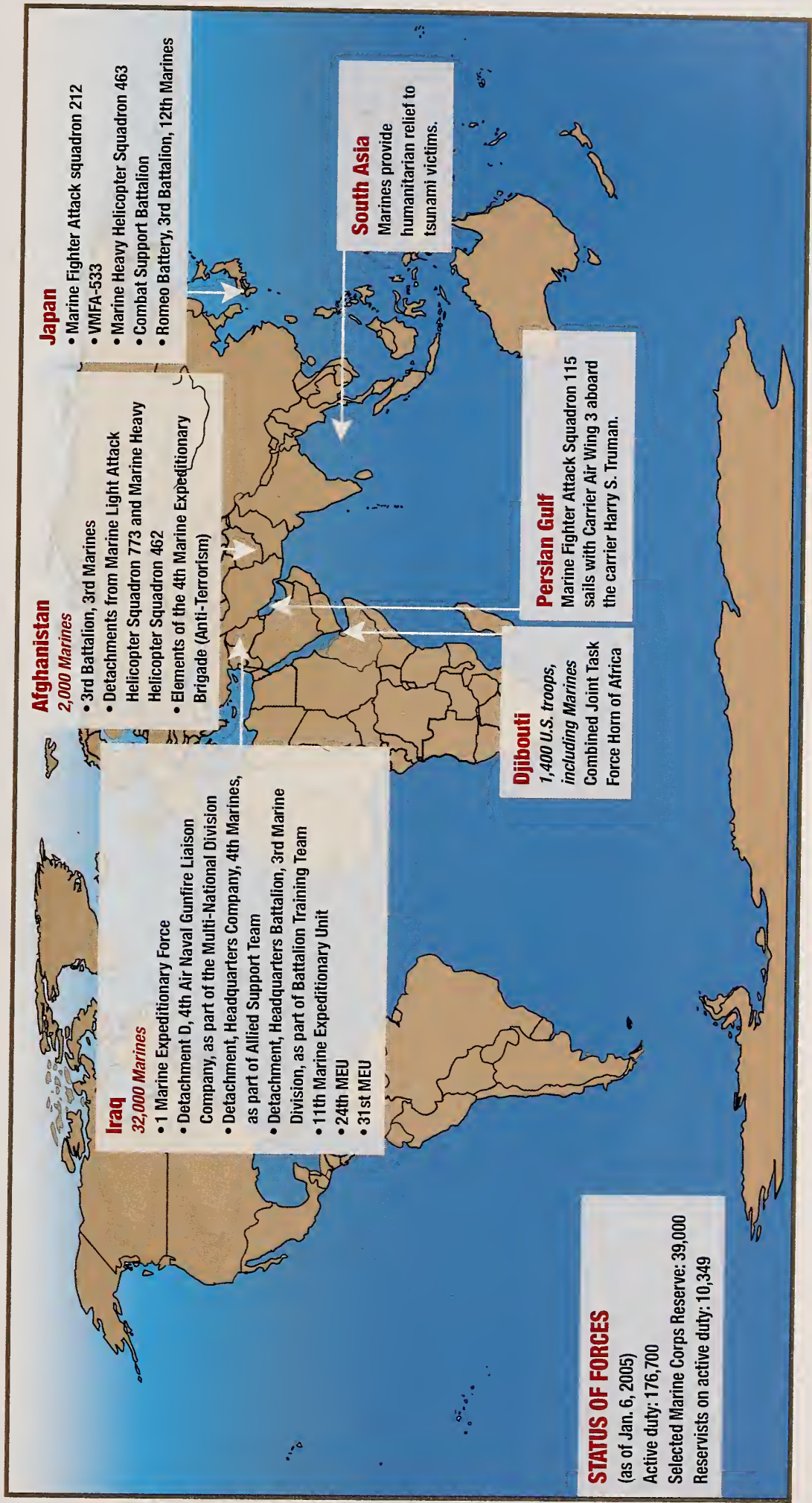
Dets from III MEF	Recovery operations in support of Operation FULL ACCOUNTING
Individual Augments	Operation JOINT GUARDIAN
Elements of 2D and 3D MARDIVs, 1ST MAW, CBIRF	Provide air defense, quick/ready reaction, and incident response forces in support of CINCNORAD, CINCPAC, and Operation NOBLE EAGLE
Det, 3D BN, 2D MAR, 4TH MEB (AT)	Provide security at the U.S. Embassy Compound
Det, 4TH MEB (AT)/FAST PLT, and Individual Augments	Provide security and staff augmentation in support of JTF-GTMO and Operation ENDURING FREEDOM
3D BN, 6TH MAR; Elements of 4TH MAW and TECOM	Conduct combat operations in support of Operation ENDURING FREEDOM; provide training and instruction to the ANA
Elements of 3D MARDIV and 3D FSSG	Provide security and medical support of U.S. forces deployed in support of Operation ENDURING FREEDOM - Phillipines
Det, 2D MARDIV, Det, 4TH MEB (AT), Det, HMH-461	Conduct anti-terrorist operations and theater security cooperation within the Horn of Africa in support of Operation ENDURING FREEDOM
Dets, II MEF, TECOM	Provide training in company level tactics and the Marine Corps Planning Process to elements of the Georgian Armed Forces
I MEF, 1ST FAST CO (-), Det B, 4TH ANGLICO, and Individual Augments to MNF-I, MNC-1, OSC	Conduct SASO ISO of the IIG; provide security in support of the U.S. mission in Baghdad; provide combined arms coordination for the multi-national division - South East Operation IRAQI FREEDOM
INF BN, 2D MARDIV	Provide ready reaction forces in support of CDRUSEUCOM, and U.S. forces deployed to the Balkans
2D PLT/2D FAST CO	Provide expanded maritime interdiction operations, and visit/board search and seizure capability ISO in support of Operation PURPLE FLEX (Olympics)
Det, MARFOREUR	Provide company level training in security operations and humanitarian assistance including medical support; TRANS-SAHEL initiative

# Selected Marine Corps Deployments 2004





# Early 2005 Marine Corps Deployment









## Marine Corps Almanac

This chapter provides a brief snapshot of the Marine Corps today. It includes a brief description of our Marines' demographics, our fiscal posture, and the age of some key equipment. As such it gives some insight into the resources that we fuse together to create one of the world's premier fighting forces.

## Officer Accessions in FY 2004

TYPE	NUMBER
United States Naval Academy	195
NROTC	185
Platoon Leaders Course	293
Officer Candidate Course	412
MECEP	135
ECP	41
MCP	4
Warrant Officer Program	179
Other	9
Total	1,453

## Officer Age Distribution

AGE	NUMBER	PERCENT
20	1	0.01%
21	7	0.04%
22	319	1.69%
23	624	3.31%
24	763	4.05%
25	827	4.39%
26	866	4.60%
27	857	4.55%
28	840	4.46%
29	843	4.47%
30	970	5.15%
31-35	5,068	26.90%
36-40	3,609	19.16%
41+	3,245	17.22%
Total	18,839	100.00%



# Officer Grade Distribution

RANK	NUMBER	PERCENT
WO1	174	0.92%
CWO2	850	4.51%
CWO3	557	2.96%
CWO4	250	1.33%
CWO5	87	0.46%
2ndLt	2,236	11.87%
1stLt	3,300	17.52%
Capt	5,230	27.76%
Maj	3,510	18.63%
LtCol	1,878	9.97%
Col	686	3.64%
Gen	81	0.43%
Total	18,839	100.00%

# Officer Occupational Field Distribution

PRIMARY MOS CODE	DESCRIPTION	FEMALE OFFICER	MALE OFFICER	TOTAL OFFICER
N/A		0	2	2
01	Personnel & Admin	186	540	726
02	Intelligence	46	900	946
03	Infantry	0	2,118	2,118
04	Logistics	157	1,296	1,453
06	C2 Systems	79	862	941
08	Field Artillery	0	881	881
11	Utilities	2	34	36
13	Engineer	43	534	577
18	Tank & AAV	0	328	328
21	Ordnance	1	135	136
23	Ammunition & EOD	1	103	104
25	Communications	0	33	33
26	SIGINT	0	34	34
28	Grd. Electronics Maint.	4	138	142
30	Supply Admin. & Opns.	75	623	698
31	Traffic Mgt.	7	20	27
33	Food Service	3	39	42
34	Financial Mgt.	47	335	382
35	Motor Transport	3	93	96
40	Data Systems	1	36	37
41	Marine Corps Exchange	3	8	11
43	Public Affairs	29	96	125
44	Legal Services	46	414	460
46	Visual Information	3	18	21
55	Music	0	14	14
57	NBC	0	106	106
58	MP and Corrections	14	195	209
59	Electronics Maint.	3	75	78
60	Aircraft Maint.	3	376	399
63	Avionics	3	126	129
65	Aviation Ordnance	1	91	92
66	Aviation Logistics	28	217	245
68	METOC Services	2	34	36
70	Airfield Services	1	39	40
72	Air C2	52	498	550
73	Navigation Officer	0	20	20
75	Pilot/NFOs	136	5,010	5,146
98-99	ID and Reporting	97	1,322	1,419
Total		1,096	17,743	18,839



Officer Gender Distribution

	NUMBER	PERCENT
MALE	17,743	94.18%
FEMALE	1,096	5.82%
Total	18,839	100.00%

Officer Grade by Gender

RANK	# MALE	% MALE	# FEMALE	% FEMALE	TOTAL
WO1	156	89.66%	18	10.34%	174
CWO2	794	93.41%	56	6.59%	850
CWO3	524	94.08%	33	5.92%	557
CWO4	238	95.20%	12	4.80%	250
CWO5	86	98.85%	1	1.15%	87
2ndLt	2,032	90.88%	204	9.12%	2236
1stLt	3,017	91.42%	283	8.58%	3300
Capt	4,894	93.58%	336	6.42%	5230
Maj	3,432	97.78%	78	2.22%	3510
LtCol	1,828	97.34%	50	2.66%	1878
Col	663	96.65%	23	3.35%	686
Gen	79	97.53%	2	2.47%	81
Total	17,743		1,096		18839

Officer Marine Families

CIVILIAN SPOUSES	MILITARY SPOUSES	CHILDREN/ OTHER DEPENDENTS
12,665	747	22,365

Officer Racial and Gender Distribution

RANK	WHITE MALE	WHITE FEMALE	BLACK MALE	BLACK FEMALE	HISPANIC MALE	HISPANIC FEMALE	OTHER MALE	OTHER FEMALE	TOTAL
WO/CWO	1,298	61	262	37	150	15	88	7	1,918
2ndLt	1,691	167	78	11	132	13	131	13	2,236
1stLt	2,428	211	161	23	202	28	226	21	3,300
Capt	3,902	241	380	35	336	28	276	32	5,230
Maj	2,937	55	198	10	144	4	153	9	3,510
LtCol	1,653	46	68	4	48	0	59	0	1,878
Col	607	19	29	2	14	1	13	1	686
Gen	74	2	4	0	1	0	0	0	81
Total	14,590	802	1,180	122	1,027	89	946	83	18,839



## Enlisted Accessions FY 2004

ACTIVE ACCESSIONS	30,608
RESERVE ACCESSIONS	6,165
Total	36,773

## Enlisted Age Distribution

AGE	NUMBER	PERCENT
17	480	0.30%
18	9,239	5.82%
19	17,569	11.07%
20	20,497	12.92%
21	21,232	13.38%
22	17,312	10.91%
23	11,928	7.52%
24	8,907	5.61%
25	7,585	4.78%
26-30	21,819	13.75%
31-35	10,919	6.88%
36-40	7,353	4.63%
41+	3,801	2.40%
Total	158,641	100.00%

# Enlisted Grade Distribution

RANK	NUMBER	PERCENT
Pvt	13,111	8.26%
PFC	19,591	12.35%
LCpl	46,569	29.35%
Cpl	28,291	17.83%
Sgt	23,367	14.73%
SSgt	14,211	8.96%
GySgt	8,749	5.51%
1stSgt/MSgt	3,356	2.12%
SgtMaj/MGySgt	1,396	0.88%
Total	158,641	100.00%



Enlisted Occupational Field Distribution

PRIMARY MOS CODE	DESCRIPTION	FEMALE ENLISTED	MALE ENLISTED	TOTAL
N/A		2	9	11
01	Personnel & Admin.	1,379	6,809	8,188
02	Intelligence	160	1,902	2,062
03	Infantry	0	28,228	28,228
04	Logistics	355	3,263	3,618
05	MAGTF Plans	25	250	275
06	C2 Systems	919	11,549	12,468
08	Field Artillery	0	3,808	3,808
11	Utilities	292	2,568	2,860
13	Engineer	187	7,532	7,719
18	Tank & AAV	0	2,269	2,269
21	Ordnance	60	3,771	3,831
23	Ammunition & EOD	193	1,537	1,730
25	Communications	0	6	6
26	SIGINT	227	1,802	2,029
28	Grd. Electronics Maint.	149	3,898	4,047
30	Supply Admin. & Ops.	1,050	5,852	6,902
31	Traffic Mgt.	103	529	632
33	Food Service	317	2,097	2,414
34	Financial Mgt.	205	1,081	1,286
35	Motor Transport	546	11,871	12,417
40	Data Systems	6	79	85
41	Marine Corps Exchange	11	119	130
43	Public Affairs	88	348	436
44	Legal Services	116	432	548
46	Visual Information	79	376	455
55	Music	116	578	694
57	NBC	44	836	880
58	MP and Corrections	267	3,433	3,700
59	Electronics Maint.	84	1,263	1,347
60	Aircraft Maint.	295	4,676	4,971
61	Aircraft Maint.	88	3,373	3,461
62	Aircraft Maint.	86	3,363	3,449
63	Avionics	234	3,456	3,690
64	Avionics	195	2,689	2,884
65	Aviation Ordnance	169	2,437	2,606
66	Aviation Logistics	320	1,635	1,955
68	METOC Services	29	316	345
70	Airfield Services	188	2,118	2,306
72	Air C2	98	1,987	2,085
73	Enlisted Flight Crew	10	277	287
84-85	Category "B"	64	682	746
98-99	ID and Reporting	917	12,255	13,172
Total		9,684	148,957	158,641

## Enlisted Gender Distribution

	NUMBER	PERCENT
MALE	148,957	93.90%
FEMALE	9,684	6.10%
Total	158,641	100%

## Enlisted Grade by Gender

RANK	# MALE	% MALE	# FEMALE	% FEMALE	TOTAL
Pvt	12,443	94.91%	668	5.09%	13111
PFC	18,300	93.41%	1,291	6.59%	19591
LCpl	43,671	93.78%	2,898	6.22%	46569
Cpl	26,537	93.80%	1,754	6.20%	28291
Sgt	21,782	93.22%	1,585	6.78%	23367
SSgt	13,391	94.23%	820	5.77%	14211
GySgt	8,312	95.01%	437	4.99%	8749
1stSgt/MSgt	3,173	94.55%	183	5.45%	3356
SgtMaj/MGySgt	1,348	96.56%	48	3.44%	1396
Total	148,957		9,684		158,641

## Enlisted Marine Families

CIVILIAN SPOUSES	MILITARY SPOUSES	CHILDREN/ OTHER DEPENDENTS
59,640	6,105	85,338



Enlisted Racial and Gender Distribution

RANK	WHITE MALE	WHITE FEMALE	BLACK MALE	BLACK FEMALE	HISPANIC MALE	HISPANIC FEMALE	OTHER MALE	OTHER FEMALE	TOTAL
Pvt	7,845	437	922	87	1,030	93	2646	51	13111
PFC	11,919	786	1,470	152	1,633	201	3278	152	19591
LCpl	29,138	1,596	4,100	418	6,083	546	4350	338	46569
Cpl	17,337	920	2,881	317	4,331	363	1988	154	28291
Sgt	13,090	731	3,411	356	3,770	334	1511	164	23367
SSgt	7,944	364	2,589	243	1,993	150	865	63	14211
GySgt	5,061	176	1,907	176	867	59	477	26	8749
1stSgt/MSgt	1,838	87	899	68	290	21	146	7	3356
SgtMaj/MGySgt	703	26	431	15	148	4	66	3	1396
Total	94,875	5,123	18,610	1,832	20,145	1,771	15,327	958	158,641

## Selected Marine Corps Reserve Officer Age Distribution

AGE	NUMBER	PERCENT
22	4	0.12%
23	6	0.17%
24	3	0.09%
25	6	0.17%
26	10	0.29%
27	15	0.43%
28	29	0.84%
29	46	1.33%
30	57	1.64%
31	83	2.39%
32	112	3.23%
33	135	3.89%
34	154	4.44%
35	201	5.80%
36	192	5.54%
37	214	6.17%
38	212	6.12%
39	238	6.87%
40	254	7.33%
41	227	6.55%
42	190	5.48%
43	194	5.60%
44	153	4.41%
45	134	3.87%
46	129	3.72%
47	93	2.68%
48	100	2.89%
49	72	2.08%
50	67	1.93%
51	48	1.38%
52	23	0.66%
53	6	0.17%
54	23	0.66%
55	9	0.26%
56	10	0.29%
57	8	0.23%
58	5	0.14%
59	4	0.12%
Total	3466	100.00%



Selected Marine Corps Reserve Officer Grade Distribution

RANK	NUMBER	PERCENT
WO1	49	1.41%
CWO2	92	2.65%
CWO3	102	2.94%
CWO4	107	3.09%
CWO5	19	0.55%
2ndLt	31	0.89%
1stLt	30	0.87%
Capt	459	13.24%
Maj	1,119	32.29%
LtCol	1,090	31.45%
Col	359	10.36%
B Gen	5	0.14%
M Gen	4	0.12%
Total	3,466	100.00%

## Selected Marine Corps Reserve Officer Occupational Field Distribution

PRIMARY MOS CODE	DESCRIPTION	FEMALE OFFICER	MALE OFFICER	TOTAL OFFICER
01	Personnel & Admin.	53	79	132
02	Intelligence	14	177	191
03	Infantry	0	459	459
04	Logistics	34	210	244
06	C2 Systems	12	163	175
08	Field Artillery	0	216	216
11	Utilities	0	14	14
13	Engineer	1	124	125
18	Tank & AAV	0	90	90
21	Ordnance	0	11	11
23	Ammunition & EOD	0	10	10
25	Communications	0	9	9
26	SIGINT	0	2	2
28	Grd. Electronics Maint.	1	20	21
30	Supply Admin & Opns.	14	125	139
31		0	1	1
33	Food Service	0	1	1
34	Financial Mgt.	7	33	40
35	Motor Transport	0	26	26
40	Data Systems	0	2	2
43	Public Affairs	11	19	30
44	Legal Services	14	163	177
46	Visual Information	0	1	1
57	NBC	0	38	38
58	MP and Corrections	4	49	53
59	Electronics Maint.	0	2	2
60	Aircraft Maint.	5	50	55
63	Avionics	1	6	7
65	Aviation Ordnance	0	13	13
66	Aviation Logistics	3	31	34
68		0	1	1
70	Airfield Services	0	8	8
72	Air C2	8	118	126
73	Navigation Officer	0	5	5
75	Pilots/NFOs	0	646	646
99	ID and Reporting	18	344	362
<b>Total</b>		<b>200</b>	<b>3,266</b>	<b>3,466</b>



Selected Marine Corps Reserve Enlisted Age Distribution

AGE	NUMBER	PERCENT
17	73	0.20%
18	1,371	3.80%
19	2,976	8.24%
20	3,744	10.37%
21	4,120	11.41%
22	4,135	11.45%
23	3,946	10.93%
24	3,320	9.19%
25	2,313	6.41%
26	1,600	4.43%
27	1,348	3.73%
28	1,033	2.86%
29	819	2.27%
30	698	1.93%
31	571	1.58%
32	511	1.42%
33	498	1.38%
34	449	1.24%
35	381	1.06%
36	309	0.86%
37	290	0.80%
38	285	0.79%
39	269	0.74%
40	217	0.60%
41	165	0.46%
42	144	0.40%
43	114	0.32%
44	106	0.29%
45	69	0.19%
46	49	0.14%
47	47	0.13%
48	32	0.09%
49	18	0.05%
50	16	0.04%
51	16	0.04%
52	11	0.03%
53	9	0.02%
54	6	0.02%
55	11	0.03%
56	6	0.02%
57	4	0.01%
58	5	0.01%
59	3	0.01%
60	0	0.00%
61	1	0.00%
Total	36,108	100.00%

## Selected Marine Corps Reserve Enlisted Grade Distribution

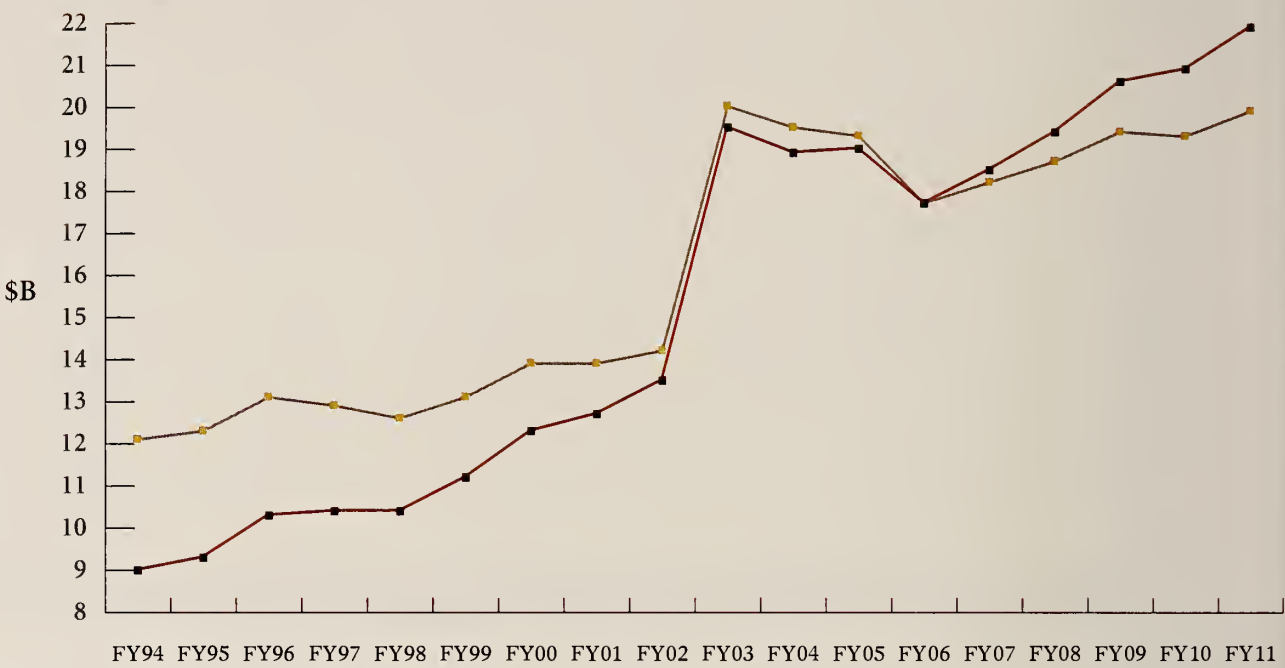
RANK	NUMBER	PERCENT
Pvt	2,269	6.28%
PFC	4,123	11.42%
LCpl	15,038	41.65%
Cpl	6,843	18.95%
Sgt	4,373	12.11%
SSgt	1,832	5.07%
GySgt	1,033	2.86%
1stSgt/MSgt	447	1.24%
SgtMaj/MGySgt	150	0.42%
Total	36,108	100.00%



# Selected Marine Corps Reserve Enlisted Occupational Field Distribution

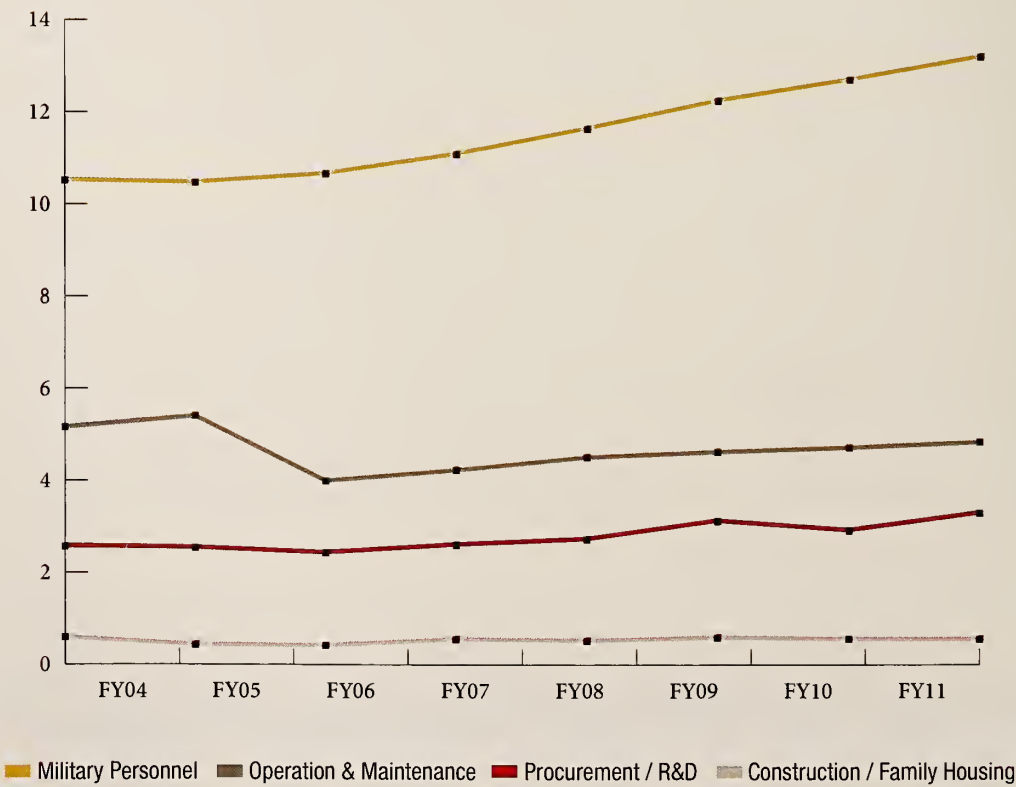
PRIMARY MOS CODE	DESCRIPTION	FEMALE ENLISTED	MALE ENLISTED	TOTAL
01	Personnel & Admin.	395	1316	1,711
02	Intelligence	30	368	398
03	Infantry	0	7948	7,948
04	Logistics	91	1100	1,191
05	MAGTF Plans	4	47	51
06	C2 Systems	152	3251	3,403
08	Field Artillery	1	1623	1,624
11	Utilities	68	718	786
13	Engineer	99	2888	2,987
18	Tank & AAV	0	860	860
21	Ordnance	10	970	980
23	Ammunition & EOD	36	513	549
25	Communications	1	11	12
26	SIGINT	2	26	28
28	Grd. Electronics Maint.	10	692	702
30	Supply Admin. & Opns.	231	1384	1,615
31	Traffic Mgt.	41	98	139
33	Food Service	52	679	731
34	Financial Mgt.	8	28	36
35	Motor Transport	138	4087	4,225
40	Data Systems	1	10	11
43	Public Affairs	4	13	17
44	Legal Services	7	21	28
46	Visual Information	4	13	17
55	Music	0	2	2
56		0	1	1
57	NBC	12	211	223
58	MP and Corrections	32	707	739
59	Electronics Maint.	3	133	136
60	Aircraft Maintenance	36	467	503
61	Aircraft Maintenance	10	441	451
62	Aircraft Maintenance	5	329	334
63	Avionics	7	242	249
64	Avionics	4	219	223
65	Aviation Ordnance	13	272	285
66	Aviation Logistics	42	285	327
68	METOC Services	6	39	45
70	Airfield Services	31	310	341
72	Air C2	24	415	439
73	Enlisted Flight Crew	1	42	43
84-86	Category "B"	5	82	87
99	ID and Reporting	63	1568	1,631
Total		1,679	34,429	36,108

# Marine Corps Green Appropriations



- Does not include BRAC
- Funding includes a supplemental increase in FY04 of \$2.1M

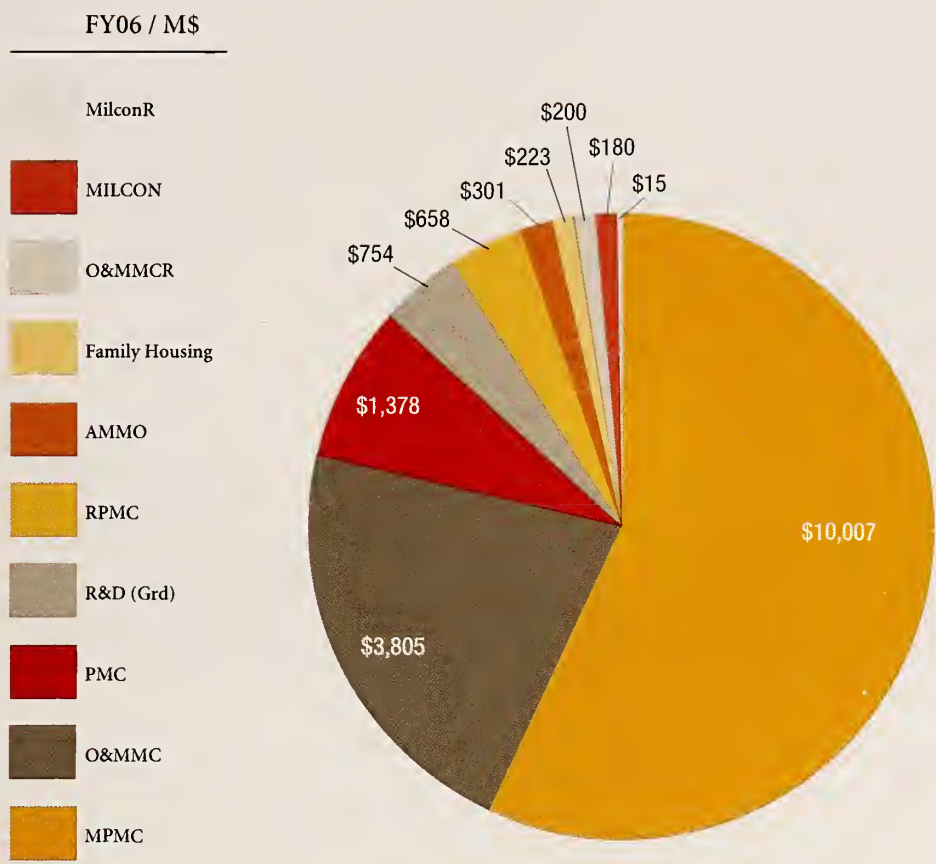
# Marine Corps Fiscal Landscape



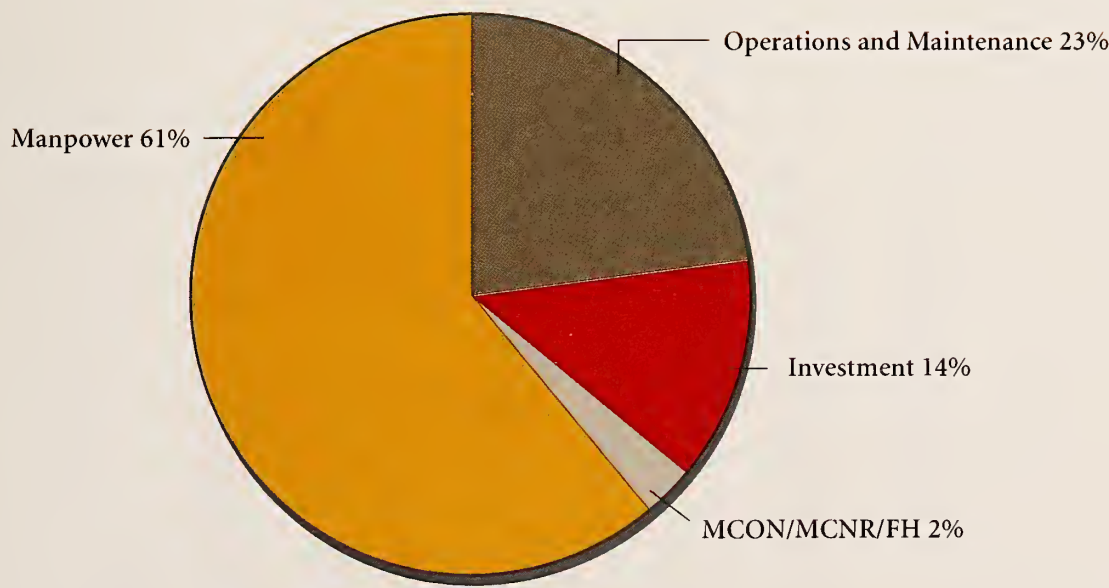
■ Military Personnel ■ Operation & Maintenance ■ Procurement / R&D ■ Construction / Family Housing



# USMC Total Obligation Authority Breakout (\$ Millions)

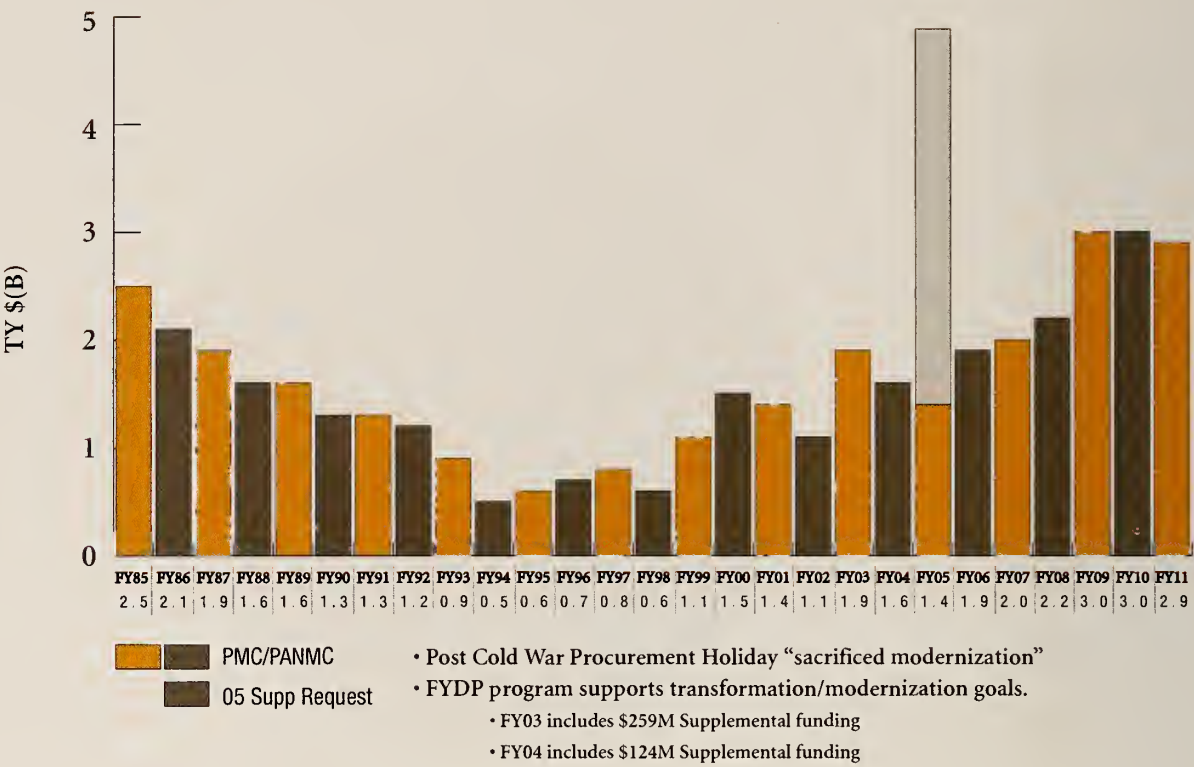


# USMC FY06 Appropriations

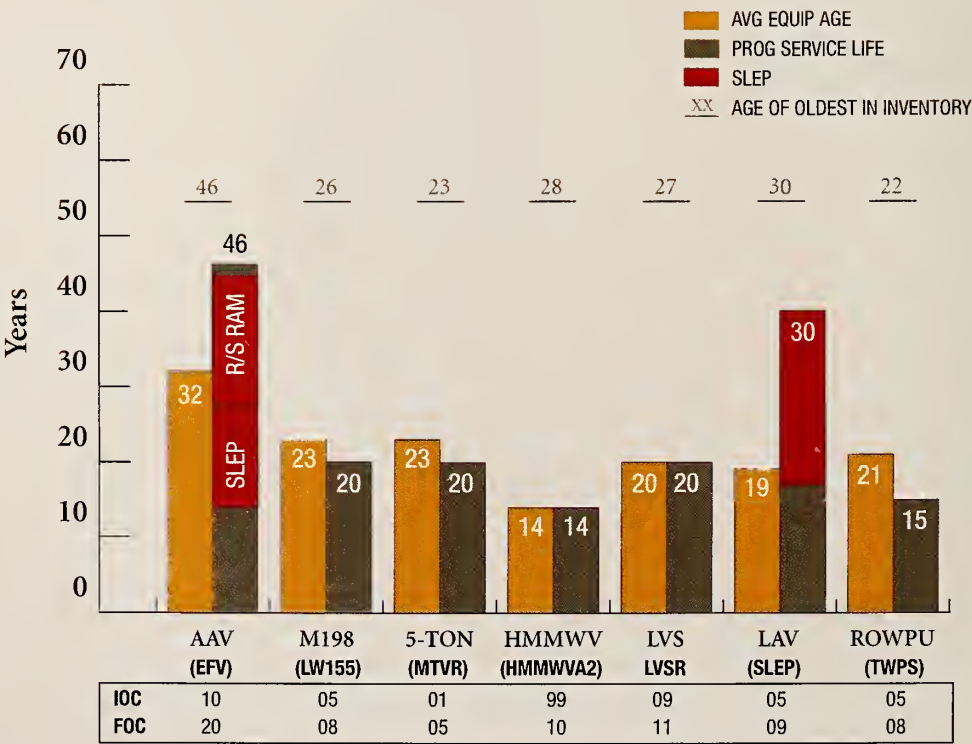


\*Does not include BRAC

# Historical Ground Procurement Summary

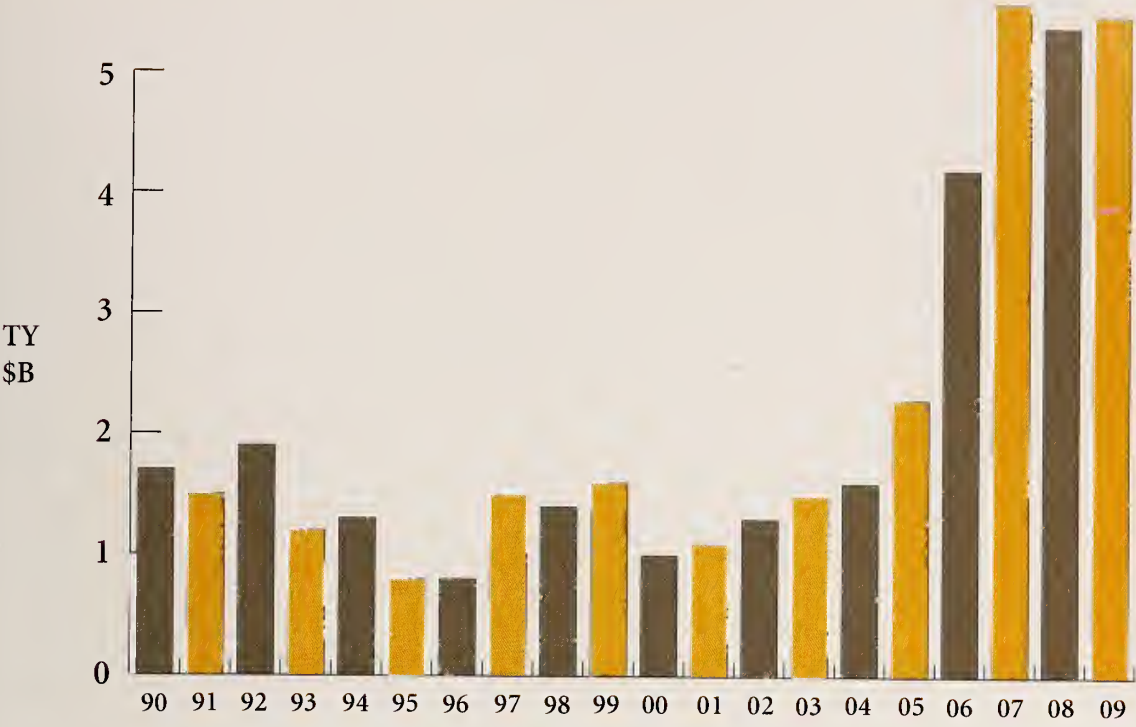


# Ground Equipment Aging

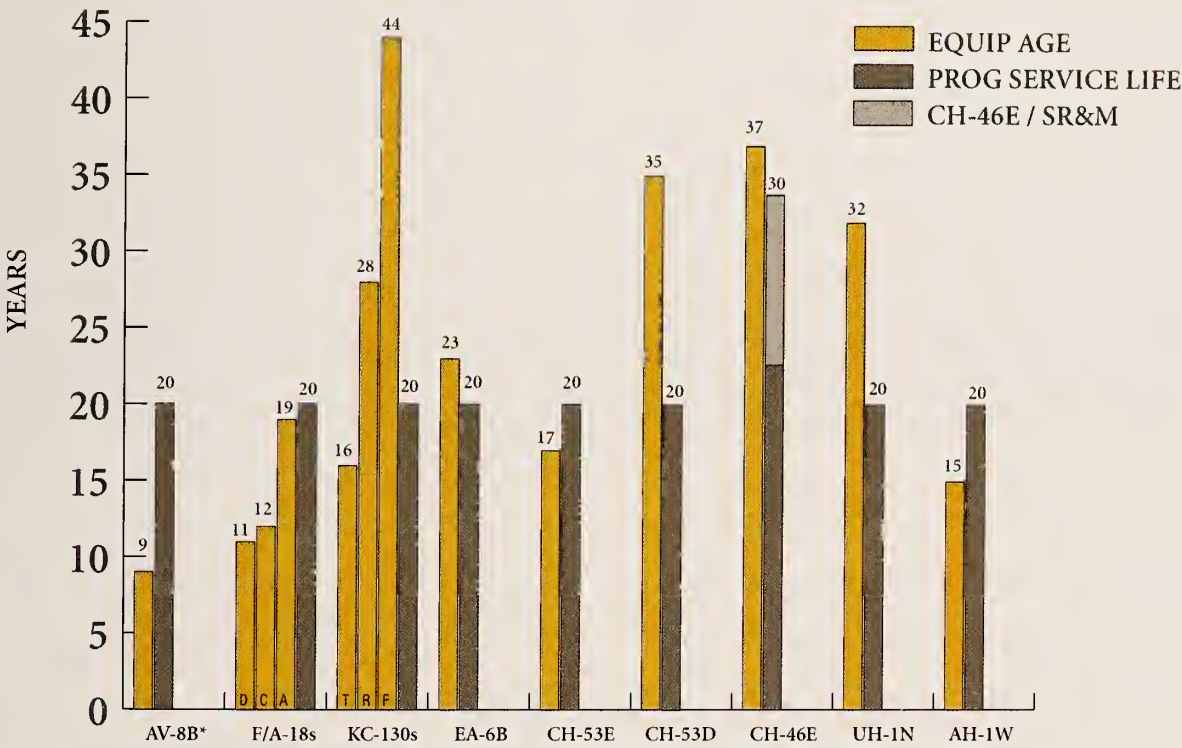




# Historical Aircraft Procurement Summary



## Aviation Combat Element / Average Equipment Age



Replacement System:	JSF	KC-130J	HL(R)	MV-22	UH-1Y	AH-1Z
IOC	12	05	N/A	15	07	10
FOC	24	TBD	N/A	21	19	14
Objective	420 (STOVL)	51	154	360	100	180

\*Extended Service Life Due To Remanufacture  
Based on latest Aircraft Inventory Readiness Reporting System (AIRRS) audit Oct 2004.

## How the Marines Are Organized

The United States Marine Corps is organized as a “force-in-readiness,” one that is able to support a wide range of national military requirements. The service is divided into four broad categories:

- Headquarters Marine Corps;
- Operating forces;
- Supporting establishment; and,
- Reserves.

### Headquarters Marine Corps

Headquarters, US Marine Corps (HQMC) consists of the Commandant of the Marine Corps and those staff agencies that advise and assist him in discharging his responsibilities prescribed by law and higher authority. The Commandant is directly responsible to the Secretary of the Navy for the total performance of the Marine Corps. This includes the administration, discipline, internal organization, training, requirements, efficiency, and readiness of the service. The Commandant also is responsible for the operation of the Marine Corps material support system.

### Operating Forces

Operating forces—the heart of the Marine Corps—comprise the forward-presence, crisis-response, and fighting power that the Corps makes available to U.S. unified combatant commanders. The Marine Corps has established two combatant command-level service components: Marine Corps Forces, Atlantic (MARFORLANT) and Marine Corps Forces, Pacific (MARFORPAC). The Commander, U.S. Marine Forces, Atlantic (COMMARFORLANT) is assigned to the Commander, U.S. Joint Forces Command (USJFCOM). He provides the

2nd Marine Expeditionary Force (II MEU) to USJFCOM. Likewise, the Commander, U.S. Marine Forces, Pacific (COMMARFORPAC) is assigned to the Commander, U.S. Pacific Command (USPACOM). COMMARFORPAC provides the 1st and 3rd MEUs to USPACOM. These assignments reflect the peacetime disposition of Marine Corps forces. Marine forces are apportioned to the remaining geographic combatant commands—the U.S. Southern Command (USSOUTHCOM), U.S. Northern Command (USNORTHCOM), U.S. European Command (USEUCOM), U.S. Central Command (USCENTCOM), and U.S. Forces Korea (USFK)—for contingency planning, and are provided to these commands when directed by the Secretary of Defense.

### Reserves

The United States Marine Corps Reserve is responsible for providing trained units and qualified individuals to be mobilized for active duty in time of war, national emergency or contingency operations, and provide personnel and operational tempo relief for active component forces in peacetime. Marine Corps force expansion is made possible by activation of the Marine Corps Reserve, which like the active forces, consists of a combined-arms force with balanced ground, aviation, and combat service support units. Organized under the Commander, Marine Forces Reserve (COMMARFORRES), units of this command are located at 185 training centers in 47 states, Puerto Rico, and the District of Columbia. Over the past several years, the Reserve component has been closely integrated with the active component under the Marine Corps’ Total Force concept. The Reserves provide individuals and specific





units to augment and reinforce active capabilities. The ethos for Marine Forces Reserve is mobilization and combat readiness. This ensures the men and women of Marine Forces Reserve stand ready, willing, and able to answer the nation's call at home and abroad at a moment's notice.

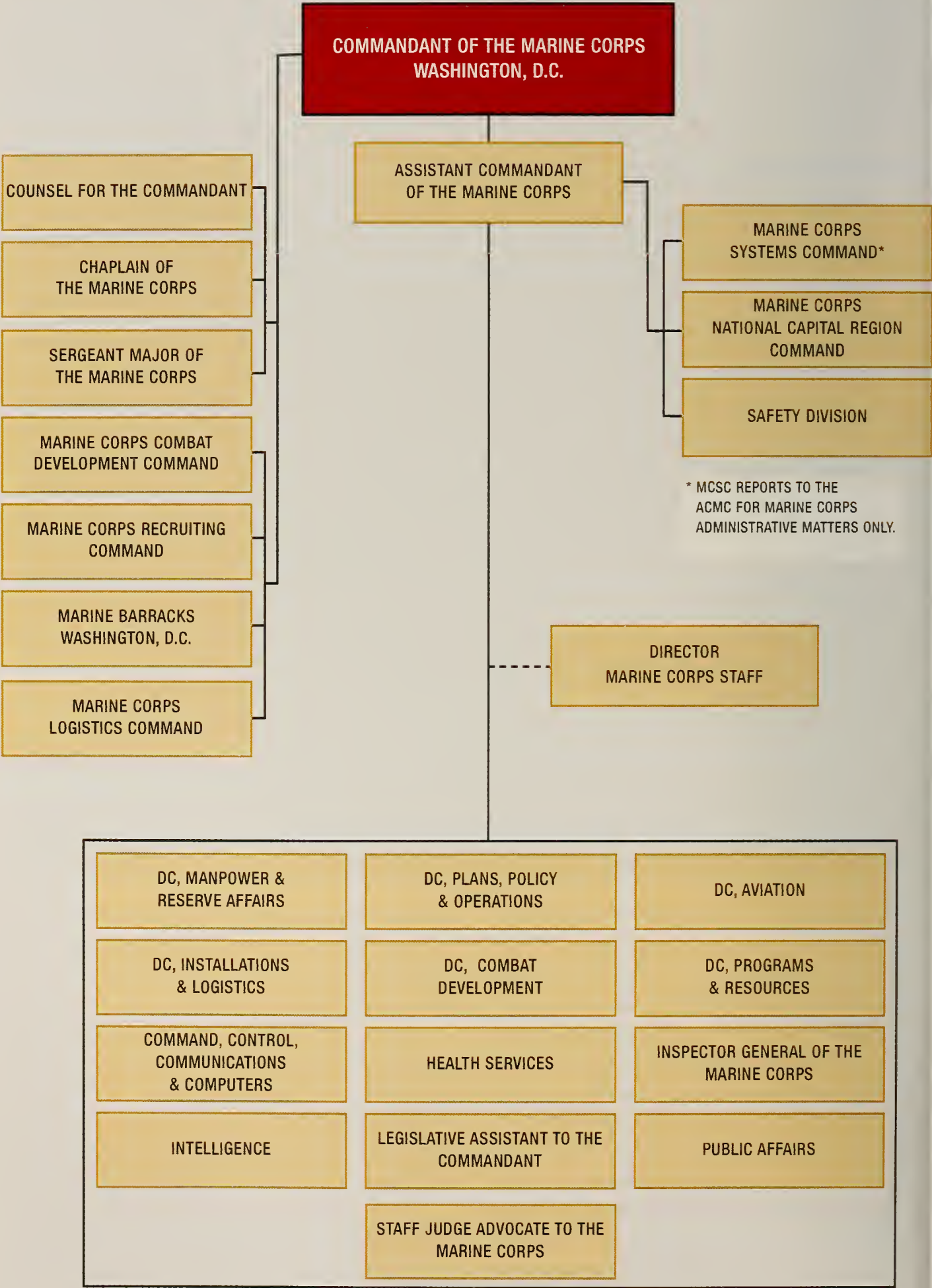
### **Supporting Establishment**

The Marine Corps supporting establishment consists of those personnel, bases, and activities that support the Marine Corps' operating forces. This infrastructure

consists primarily of 15 major bases and stations in the United States and Japan, as well as the personnel, equipment, and facilities required to operate them.

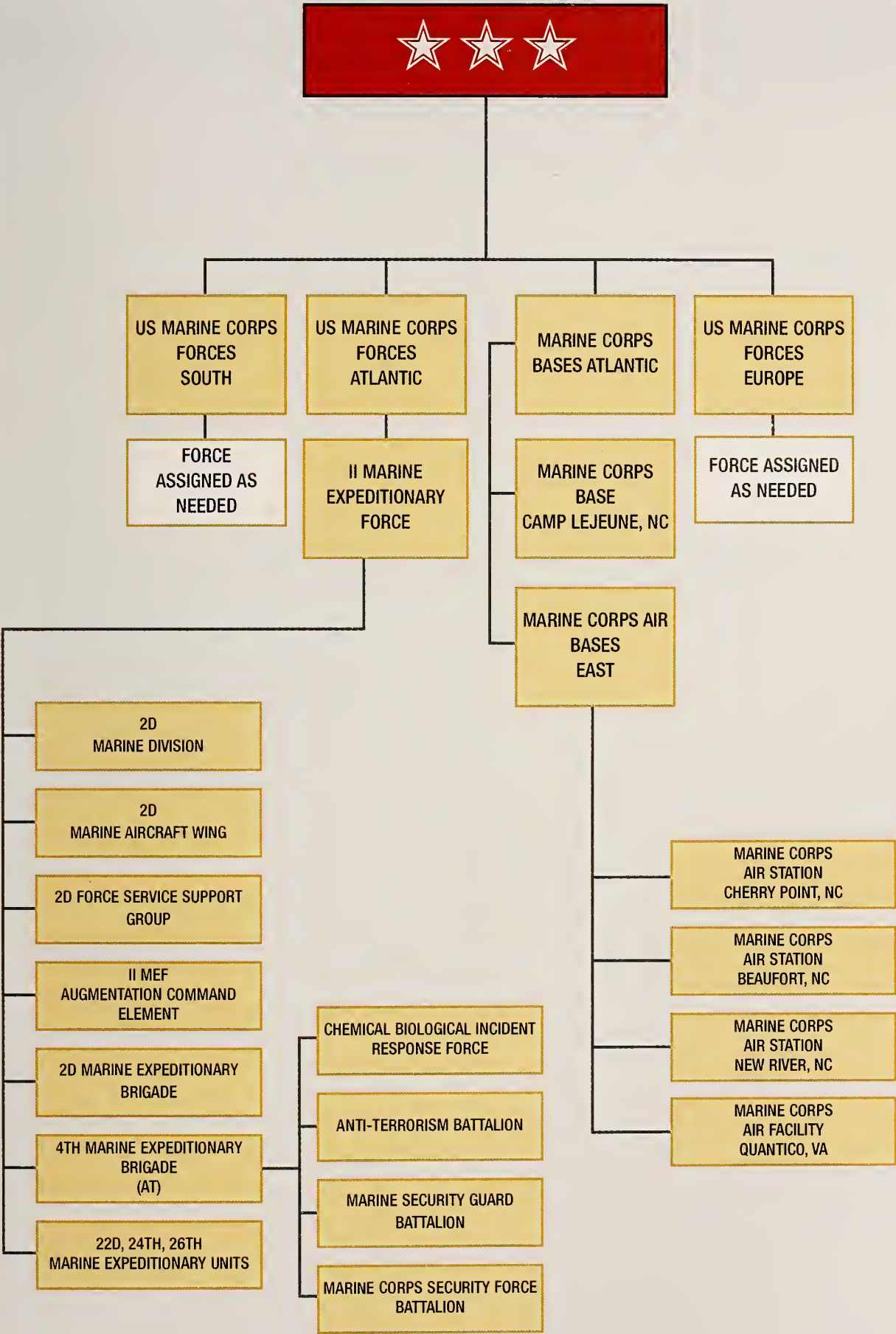
The supporting establishment also includes the Marine Corps Recruiting Command, Marine Corps Combat Development Command, and Marine Corps Logistics Command, as well as all training activities and formal schools. Additionally, the establishment includes those civilian activities and agencies that support the Marine forces.

# Headquarters, US Marine Corps





# U.S. Marine Corps Forces Atlantic, Europe, South



# U.S. Marine Corps Forces Atlantic Ground Units

## Marine Corps Base Camp Lejeune, NC

### II MARINE EXPEDITIONARY FORCE

- II Marine Expeditionary Force  
Headquarters Group
- 2d Marine Expeditionary Brigade
- 4th Marine Expeditionary Brigade  
(Anti-Terrorism)
- 22d Marine Expeditionary Unit  
Command Element
- 24th Marine Expeditionary Unit  
Command Element
- 26th Marine Expeditionary Unit  
Command Element

### 2D FORCE SERVICE SUPPORT GROUP

- Headquarters & Service Battalion
- 2d Force Service Support Group (Forward)
- 2d Medical Battalion
- 2d Dental Battalion
- 2d Supply Battalion
- 2d Maintenance Battalion
- 2d Transportation Support Battalion
- 8th Engineer Support Battalion
- MEU Service Support Group 22
- MEU Service Support Group 24
- MEU Service Support Group 26
- Combat Service Support Detachment 21
- Combat Service Support Detachment 23

### 2D MARINE DIVISION

- Headquarters Battalion
- 2d Marine Regiment
  - 1st Battalion (1/2)
  - 2d Battalion (2/2)
  - 3d Battalion (3/2)
- 6th Marine Regiment
  - 1st Battalion (1/6)
  - 2d Battalion (2/6)
  - 3d Battalion (3/6)
- 8th Marine Regiment
  - 1st Battalion (1/8)
  - 2d Battalion (2/8)
  - 3d Battalion (3/8)
- 10th Marine Regiment
  - 1st Battalion (1/10)
  - 2d Battalion (2/10)
  - 3d Battalion (3/10)
  - 5th Battalion (5/10)
- 2d Tank Battalion
- 2d Assault Amphibian Battalion
- 2d Light Armored Reconnaissance Battalion
- 2d Combat Engineer Battalion
- 2d Reconnaissance Battalion



# U.S. Marine Corps Forces Atlantic Aviation Units

## 2d Marine Aircraft Wing

### Marine Corps Air Station Cherry Point, NC

#### HEADQUARTERS, 2D MARINE AIRCRAFT WING

Marine Wing Headquarters Squadron 2

#### MARINE AIRCRAFT GROUP 14

Marine Aviation Logistics Squadron 14

Marine Tactical Electronic Warfare Squadron 1

Marine Tactical Electronic Warfare Squadron 2

Marine Tactical Electronic Warfare Squadron 3

Marine Tactical Electronic Warfare Squadron 4

Marine Attack Training Squadron 203

Marine Attack Squadron 231

Marine Attack Squadron 223

Marine Attack Squadron 542

Marine Aerial Refueler Squadron 252

Marine Aerial Refueler Training Squadron 253

#### MARINE AIR CONTROL GROUP 28

Marine Tactical Air Control Squadron 28

Marine Wing Communications Squadron 28

Marine Air Control Squadron 2

Marine Aircraft Support Squadron 1

Unmanned Aerial Vehicle Squadron 2

2d Low Altitude Air Defense Battalion

#### MARINE WING SUPPORT GROUP 27

Marine Wing Support Squadron 274

#### AIR TRAFFIC CONTROL DETACHMENT

### BOGUE AIRFIELD, NC

Marine Wing Support Squadron 271

Air Traffic Control detachment

### MARINE CORPS AIR STATION NEW RIVER, NC

#### MARINE AIRCRAFT GROUP 26

Marine Aviation Logistics Squadron 26

Marine Medium Helicopter Squadron 261

Marine Medium Helicopter Squadron 264

Marine Medium Helicopter Squadron 266

Marine Heavy Helicopter Squadron 461

Marine Light Attack Helicopter Squadron 167

Marine Medium Tilt Rotor Training Squadron 204

#### MARINE AIRCRAFT GROUP 29

Marine Aviation Logistics Squadron 29

Marine Medium Helicopter Squadron 162

Marine Medium Helicopter Squadron 263

Marine Medium Helicopter Squadron 365

Marine Heavy Helicopter Squadron 464

Marine Light Attack Helicopter Squadron 269

Marine Helicopter Training Squadron 302

#### MARINE WING SUPPORT SQUADRON 272

#### AIR TRAFFIC CONTROL DETACHMENT

### MARINE CORPS AIR STATION BEAUFORT, SC

#### MARINE AIRCRAFT GROUP 31

Marine Aviation Logistics Squadron 31

Marine Fighter Attack Squadron 115

Marine Fighter Attack Squadron 122

Marine Fighter Attack Squadron 251

Marine Fighter Attack Squadron 312

Marine Fighter Attack Squadron All Weather 224

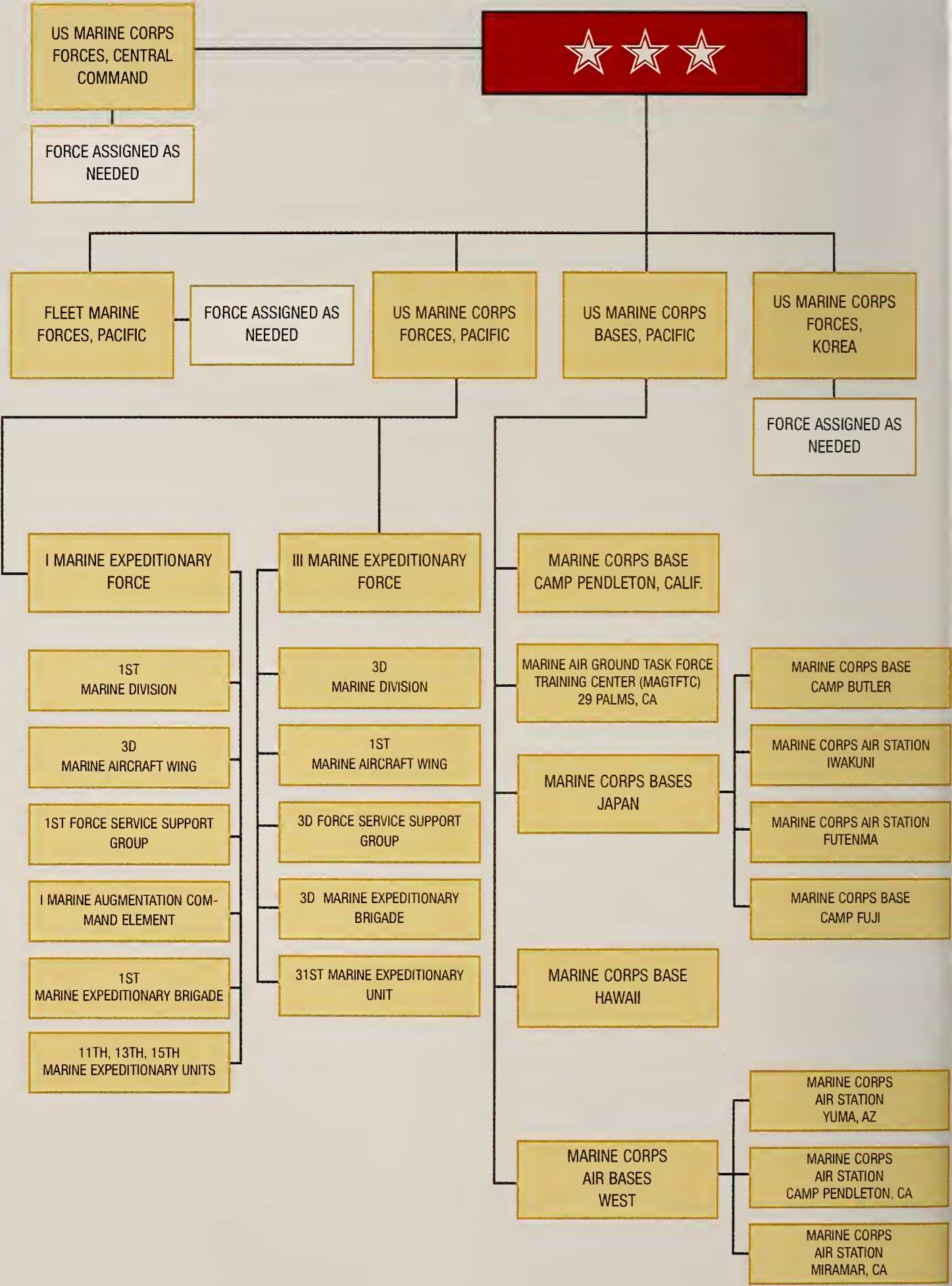
Marine Fighter Attack Squadron All Weather 332

Marine Fighter Attack Squadron All Weather 533

#### MARINE WING SUPPORT SQUADRON 273

#### AIR TRAFFIC CONTROL DETACHMENT

# U.S. Marine Corps Forces Pacific, Central Command & Korea





# U.S. Marine Corps Forces Pacific Ground Units

## Marine Corps Base Camp Pendleton, CA

### I MARINE EXPEDITIONARY FORCE

- 11th Marine Expeditionary Unit
- 13th Marine Expeditionary Unit
- 15th Marine Expeditionary Unit
- 1st Force Reconnaissance Company
- 1st Marine Expeditionary Brigade
- 9th Communications Battalion

### 1ST FORCE SERVICE SUPPORT GROUP

- Headquarters & Service Battalion
- Brigade Service Support Group 1
- 1st Medical Battalion
- 1st Dental Battalion
- 1st Maintenance Battalion
- 1st Supply Battalion
- 7th Engineer Support Battalion
- 1st Transportation Support Battalion
- MEU Service Support Group 11
- MEU Service Support Group 13
- MEU Service Support Group 15
- Combat Service Support Group 1
- Combat Service Support Detachment 16

### 1ST MARINE DIVISION

- 1st Marine Regiment
  - 1st Battalion (1/1)
  - 2d Battalion (2/1)
  - 3d Battalion (3/1)
  - 1st Battalion, 4th Marine Regiment (1/4)
- 5th Marine Regiment
  - 1st Battalion (1/5)
  - 2d Battalion (2/5)
  - 3d Battalion (3/5)
  - 2d Battalion, 4th Marine Regiment (2/4)
- 11th Marine Regiment
  - 1st Battalion (1/11)
  - 2d Battalion (2/11)
  - 5th Battalion (5/11)
- 3d Assault Amphibian Battalion
- 1st Light Armored Reconnaissance Battalion
- 1st Combat Engineer Battalion
- 1st Division Reconnaissance Company

# U.S. Marine Corps Forces Pacific Ground Units

## Twentynine Palms, CA

### I MEF ASSETS LOCATED AT THE MARINE CORPS AIR-GROUND COMBAT CENTER

- 7th Marine Regiment
  - 1st Battalion (1/7)
  - 2d Battalion (2/7)
  - 3d Battalion (3/7)
  - 3d Battalion, 4th Marine Regiment (3/4)
- 11th Marine Regiment
  - 3d Battalion (3/11)
- 1st Tank Battalion
- 3d Assault Amphibian Battalion
  - D Company
- Combat Service Support Group 1
- 3d Light Armored Reconnaissance Battalion

## Marine Corps Base Kaneohe Bay, HI

### III MEF ASSETS LOCATED AT MARINE CORPS BASE KANEOHE BAY

- 3d Marine Regiment
  - 1st Battalion (1/3)
  - 2d Battalion (2/3)
  - 3d Battalion (3/3)
- 1st Battalion, 12th Marine Regiment (1/12)



# U.S. Marine Corps Forces Pacific Ground Units

## Okinawa, Japan

### III MARINE EXPEDITIONARY FORCE

- III Marine Expeditionary Force
  - Headquarters Group
  - 7th Communication Battalion
  - 3d Intelligence Battalion
  - Special Operations Training Group
  - Headquarters & Service Company
  - 3d Marine Expeditionary Brigade
  - 31st Marine Expeditionary Unit

### 3D FORCE SERVICE SUPPORT GROUP

- Headquarters & Service Battalion
- 3d Medical Battalion
- 3d Dental Battalion
- 3d Material Readiness Battalion
- 3d Transportation Support Battalion
- 9th Engineer Support Battalion
- MEU Service Support Group 31
- Combat Service Support Detachment 36 (Iwakuni, Japan)
- Combat Services Support Group 3 (Kaneohe Bay, HI)

### 3D MARINE DIVISION

- 4th Marine Regiment
  - 3 Unit Deployment Program Battalions
- 12th Marine Regiment
- Combat Assault Battalion
  - 1 Light Armored Reconnaissance Company
  - 1 Amphibious Assault Company
  - 1 Combat Engineer Company
- 3d Force Reconnaissance Battalion

# U.S. Marine Corps Forces Pacific Aviation Units

## 1st Marine Aircraft Wing

**MARINE CORPS AIR STATION FUTENMA,  
OKINAWA, JAPAN**

**HEADQUARTERS, 1ST MARINE AIRCRAFT WING**

Marine Wing Headquarters Squadron 1

**MARINE AIRCRAFT GROUP 36**

Marine Aviation Logistics Squadron 36

Marine Medium Helicopter Squadron 262

Marine Medium Helicopter Squadron 265

Marine Heavy Helicopter Squadron –  
Pacific (Unit Deployment Program)

Marine Light Attack Helicopter Squadron –  
Pacific (Unit Deployment Program)

Marine Aerial Refueler Transport  
Squadron 152

**MARINE AIR CONTROL GROUP 18**

Marine Tactical Air Command Squadron 18

Marine Wing Communications Squadron 18

Marine Air Control Squadron 4

Marine Air Support Squadron 2

1st Stinger Battery

**MARINE WING SUPPORT SQUADRON 172**

**CAMP FOSTER, OKINAWA, JAPAN**

**MARINE WING SUPPORT GROUP 17**

**Marine Wing Support Squadron 192**

**MARINE CORPS AIR STATION IWAKUNI, JAPAN**

**MARINE WING SUPPORT SQUADRON 171**

**Marine Aircraft Group 12**

Marine Aviation Logistics Squadron 12

Marine Fighter Attack Squadron –  
Atlantic (Unit Deployment Program)

Marine Fighter Attack Squadron 212

Marine Fighter Attack Squadron –  
Pacific (Unit Deployment Program)

Marine Tactical Electronic Warfare Squadron –  
Atlantic (Unit Deployment Program)

**MARINE CORPS BASE KANEOHE BAY, HI**

**MARINE AIRCRAFT GROUP 24**

Marine Helicopter Training Squadron 301

Marine Heavy Helicopter Squadron 362

Marine Heavy Helicopter Squadron 363

Marine Heavy Helicopter Squadron 463

Marine Aviation Logistics Squadron 24



# U.S. Marine Corps Forces Pacific Aviation Units

## 3d Marine Aircraft Wing

### MARINE CORPS AIR STATION MIRAMAR, CA

#### HEADQUARTERS, 3D MARINE AIRCRAFT WING

Marine Wing Headquarters Squadron 3

#### MARINE AIRCRAFT GROUP 11

Marine Aviation Logistics Squadron 11

Marine Fighter Attack Squadron 232

Marine Fighter Attack Squadron 314

Marine Fighter Attack Squadron 323

Marine Fighter Attack Squadron  
All Weather 121

Marine Fighter Attack Squadron  
All Weather 225

Marine Fighter Attack Squadron  
All Weather 242

Marine Fighter Attack Training Squadron 101

Marine Aerial Refueler Transport  
Squadron 352

#### MARINE AIRCRAFT GROUP 16

Marine Aviation Logistics Squadron 16

Marine Medium Helicopter Squadron 161

Marine Medium Helicopter Squadron 163

Marine Medium Helicopter Squadron 165

Marine Medium Helicopter Squadron 166

Marine Heavy Helicopter Squadron 361

Marine Heavy Helicopter Squadron 462

Marine Heavy Helicopter Squadron 465

Marine Heavy Helicopter Squadron 466

#### MARINE WING SUPPORT GROUP 37

Marine Wing Support Squadron 373

#### MARINE AIR CONTROL GROUP 38

Marine Wing Communications Squadron 38

Marine Tactical Air Control Squadron 38

### MARINE CORPS AIR STATION YUMA, AZ

#### MARINE AIRCRAFT GROUP 13

Marine Aviation Logistics Squadron 13

Marine Attack Squadron 211

Marine Attack Squadron 214

Marine Attack Squadron 311

Marine Attack Squadron 513

#### MARINE WING SUPPORT SQUADRON 371

#### MARINE AIR CONTROL SQUADRON 1

#### MARINE AVIATION WEAPONS AND TACTICS SQUADRON 1

#### MARINE FIGHTER ATTACK TRAINING SQUADRON 401

### MARINE CORPS AIR STATION CAMP PENDLETON, CA

#### MARINE AIRCRAFT GROUP 39

Marine Aviation Logistics Squadron 39

Marine Light Attack Helicopter  
Squadron 169

Marine Light Attack Helicopter  
Squadron 267

Marine Light Attack Helicopter  
Squadron 367

Marine Light Attack Helicopter  
Squadron 369

Marine Helicopter Training Squadron 164

Marine Medium Helicopter Squadron 268

Marine Medium Helicopter Squadron 364

Marine Helicopter Training Squadron 303

#### MARINE WING SUPPORT SQUADRON 372

#### MARINE AIR SUPPORT SQUADRON 3

#### 3D LOW ALTITUDE AIR DEFENSE BATTALION

### TWENTYNINE PALMS, CA

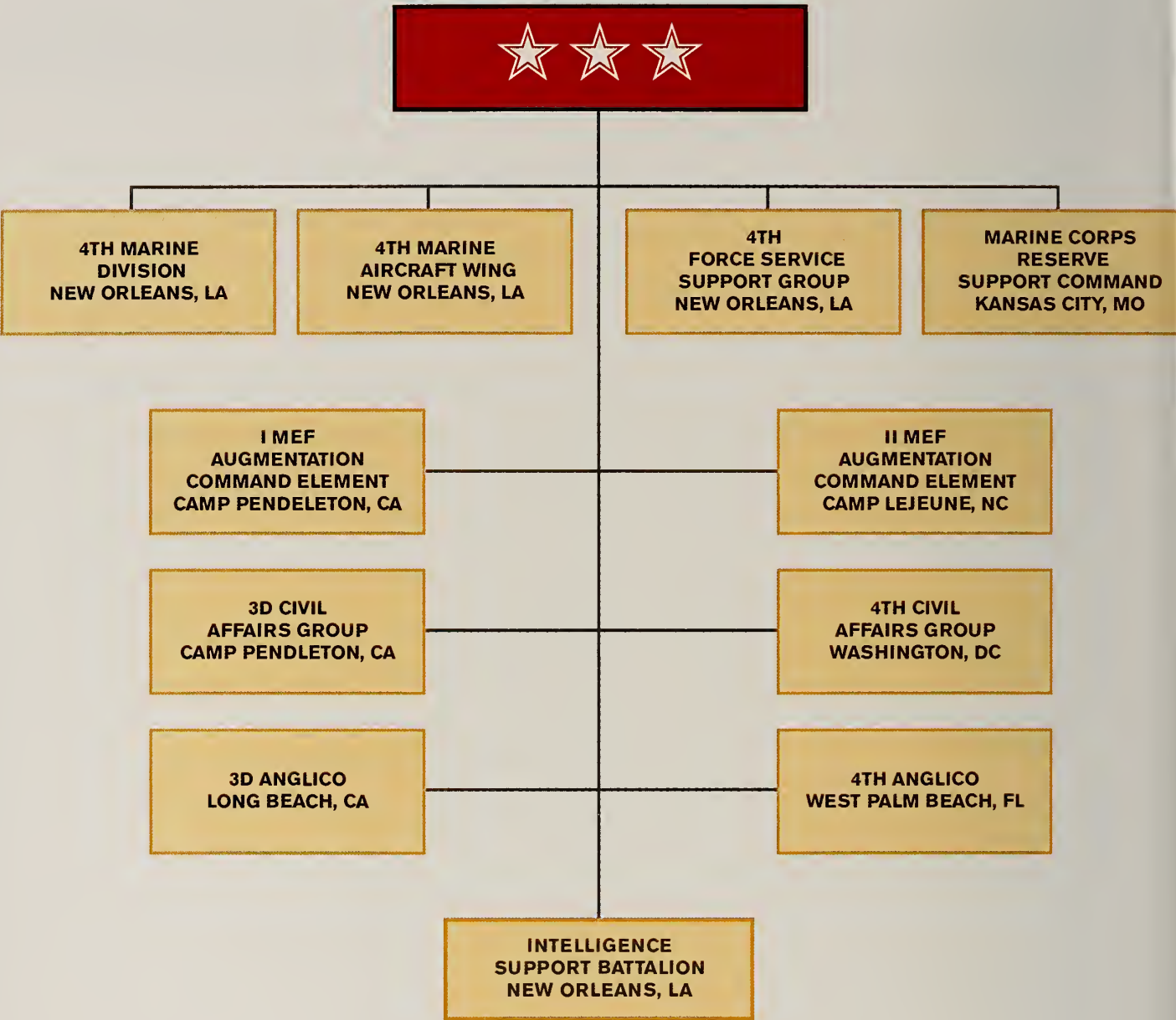
(I MEF ASSETS LOCATED AT THE MARINE CORPS  
AIR-GROUND COMBAT CENTER)

#### AIR-GROUND SUPPORT ELEMENT

#### UNMANNED AERIAL VEHICLE SQUADRON 1

#### MARINE WING SUPPORT SQUADRON 374

# U.S. Marine Corps Mobilization Command





# U.S. Marine Corps Forces Reserve Ground Units

## 4TH MARINE DIVISION

- NEW ORLEANS, LA
  - Headquarters, Headquarters Battalion
- TAMPA, FL
  - Headquarters, 4th Assault Amphibian Battalion

- FORT WORTH, TX
  - Headquarters, 14th Marines

- SAN BRUNO, CA
  - Headquarters, 23d Marines

- KANSAS CITY, MO
  - Headquarters, 24th Marines

- WORCESTER, MA
  - Headquarters, 25th Marines

- SAN DIEGO, CA
  - Headquarters, 4th Tank Battalion

- ROCHESTER, NY
  - Headquarters, 8th Tank Battalion

- MOBILE, AL
  - Headquarters, 3d Force Reconnaissance Company

- SAN ANTONIO, TX
  - Headquarters, 4th Reconnaissance Battalion

- KANEOHE BAY, HI
  - Headquarters, 4th Force Reconnaissance Company

- CAMP PENDLETON, CA
  - Headquarters, 4th Light Armored Reconnaissance Battalion

- BALTIMORE, MD
  - Headquarters, 4th Combat Engineer Battalion

- BROKEN ARROW, OK
  - TOW Training Company

## 4TH FORCE SERVICE SUPPORT GROUP

- NEW ORLEANS, LA
  - Headquarters, 4th FSSG
- MARIETTA, GA
  - Headquarters, Headquarters and Service Battalion

- PORTLAND, OR
  - Headquarters, 6th Engineer Support Battalion

- RED BANK, NJ
  - Headquarters, 6th Motor Transport Battalion

- NEWPORT NEWS, VA
  - Headquarters, 4th Supply Battalion

- CHARLOTTE, NC
  - Headquarters, 4th Maintenance Battalion

- FT. LEWIS, WA
  - Headquarters, 4th Landing Support Battalion

- BROOKLYN, NY
  - Headquarters, 6th Communications Battalion

- SAN DIEGO, CA
  - Headquarters, 4th Medical Battalion

- MARIETTA, GA
  - Headquarters, 4th Dental Battalion

- CAMP PENDLETON, CA
  - 4th FSSG Forward-West

- CAMP LEJEUNE, NC
  - 4th FSSG Forward-East

# U.S. Marine Corps Forces Reserve Aviation Units

## 4TH MARINE AIRCRAFT WING

### MARINE AIRCRAFT GROUP 41

- Marine Fighter Arrack Squadron 122
- Marine Aerial Refueler Transport Squadron 234
- Marine Aviation Logistics Squadron 41

Ft. Worth, TX

Ft. Worth, TX

Ft. Worth, TX

Ft. Worth, TX

### MARINE AIRCRAFT GROUP 42 HEADQUARTERS

- Marine Fighter Attack Squadron 142
- Marine Medium Helicopter Squadron 774
- Marine Light Attack Helicopter Squadron 773
- Detachment, HMLA 773
- Marine Aviation Logistics Squadron 42

NAS Atlanta, GA

NAS Atlanta, GA

NAS Norfolk, VA

NAS Atlanta, GA

NAS/JRB Belle Chasse, LA

NAS Atlanta, GA

### MARINE AIRCRAFT GROUP 46 HEADQUARTERS

- Marine Fighter Attack Squadron 134
- Marine Heavy Helicopter Squadron 769
- Marine Medium Helicopter Squadron 764
- Marine Light Attack Helicopter Squadron 775
- Detachment, HMLA-775.

MCAS Miramar, CA

MCAS Miramar, CA

Edwards AFB, CA

Edwards AFB, CA

MCB Camp Pendleton, CA

Johnstown, PA (ADCON to MAG-49)

### MARINE WING SUPPORT GROUP 47 HEADQUARTERS

- Marine Wing Support Squadron 471(-)

Mt. Clemens, MI

Minneapolis, MN

### MARINE AIR CONTROL GROUP 48 HEADQUARTERS

- Marine Wing Communication Squadron 48
- Marine Tactical Air Control Squadron 48
- Marine Air Support Squadron 6
- Marine Air Control Squadron 23
- Marine Air Control Squadron 24
- 4th Low Altitude Air Defense Battalion

GREAT LAKES, IL

Great Lakes, IL (Detachment A)

Great Lakes, IL

Westover AFB, MA

Aurora, CO

Dam Neck, VA

Pasadena, CA

### MARINE AIRCRAFT GROUP 49 HEADQUARTERS

- Marine Fighter Attack Squadron 321
- Marine Aerial Refueler Transport Squadron 452
- Marine Heavy Helicopter Squadron 772
- Marine Aviation Logistics Squadron 49

NAS/JRB WILLOW GROVE, PA

Andrews AFB

Stewart ANGB, NY

NAS/JRB Willow Grove, PA

Stewart ANGB, NY



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## **Marine Air-Ground Task Force (MAGTF)**

The MAGTF is the Marine Corps' principle organization for conducting missions across the spectrum of military operations. MAGTFs provide combatant commanders or joint task force commanders with scalable, versatile expeditionary forces able to respond to a broad range of crisis and conflict situations. They are balanced, combined-arms force packages containing organic command, ground, aviation, and sustainment elements. A single commander leads and coordinates this combined-arms team from peacetime training through deployment. MAGTF teams live and train together, further increasing their cohesion and fighting power.

### **MAGTF Capabilities**

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The naval character of MAGTFs enhances their global mobility, lethality, and staying power. Embarked aboard amphibious ships, forward-deployed MAGTFs provide U.S. civilian and military leaders with the ability to do the following:

Move forces into crisis areas without revealing their exact destinations or intentions;

Provide continuous presence from secure sea bases in international waters;

Provide immediate national response in support of humanitarian and natural-disaster relief operations;

Provide credible but non-provocative combat power over-the-horizon of a potential adversary for rapid employment as the initial response to crisis;

Support diplomatic processes for peaceful crisis-resolution before employing immediate response combat forces;

Project measured degrees of combat power ashore—at night and under adverse weather conditions, if required;

Introduce additional forces sequentially into a theater of operations;

Operate independent of established airfields, basing agreements, and over-flight rights;

Conduct combat operations ashore, using inherent combat service support that is brought into the theater of operations;

Enable the introductions of follow-on MAGTF or joint and/or combined forces by securing staging areas ashore;

Operate in rural and urban environments, and during hostile nuclear, biological, and chemical situations;

Withdraw rapidly at the conclusion of operations or remain to help restore stability to the affected areas; and,

Plan and commence execution of a mission within six to 48 hours of receiving a warning order.

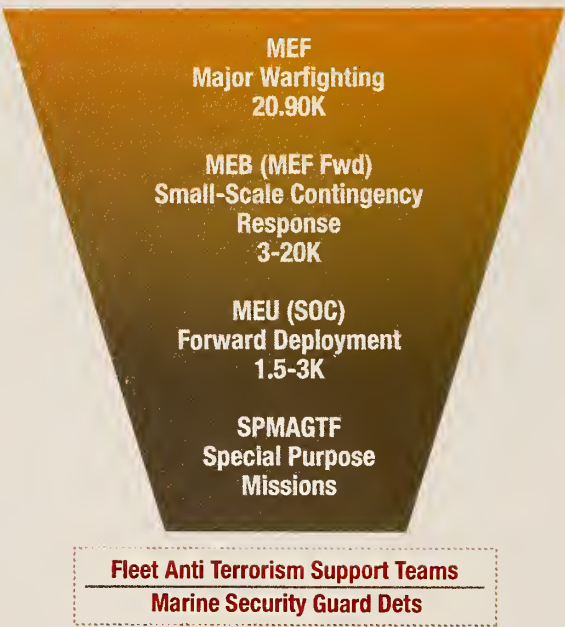
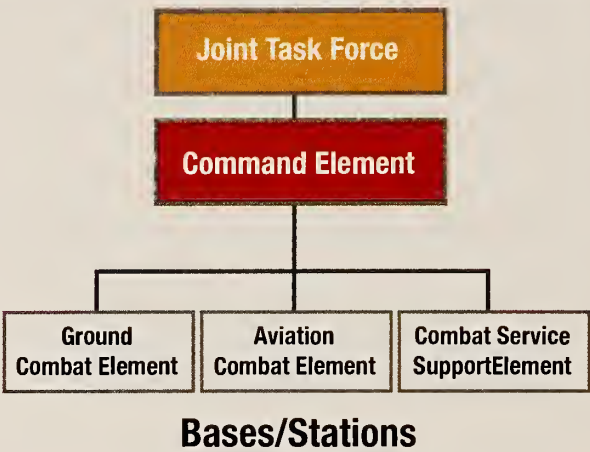
Along with the MAGTF, other special-purpose forces introduce additional depth to Marine Corps capabilities in support of joint operations.

### **MAGTF Composition**

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The Marine Corps task-organizes for combat in accordance with its statutory mandate to "...provide forces of combined arms, including aviation..." by forming integrated, combined-arms MAGTFs. As the name indicates, MAGTFs are task-organized and specifically tailored by mission, as well as for rapid deployment by air and/or sea. However, no matter what their mission or mode of deployment, MAGTFs are comprised of four deployable elements,

Marine Air-Ground Task Force - MAGTF



supported by the fifth element—our bases and stations.

**Command Element (CE):** The CE contains the MAGTF headquarters and other units that provide intelligence, communications, and administrative support. As with all other elements of the MAGTF, the CE is scalable and task-organized to provide the command, control, communications, computers, intelligence (C4I), and joint interoperability necessary for effective planning and execution of operations.

**Ground Combat Element (GCE):** The GCE is task-organized to conduct ground operations to support the MAGTF mission. This element includes infantry, artillery, reconnaissance, armor, light armor, assault amphibian, engineer, and other forces, as needed. The GCE can vary in size and composition. It can consist of a light, air-transportable battalion; a relatively heavy and mechanized unit that includes one or more Marine, Army, or allied divisions; or, another type of Marine Corps ground combat unit that meets the demands of a particular mission.

**Aviation Combat Element (ACE):** The ACE conducts offensive and defensive air operations and is task-organized to perform those functions of Marine aviation required to support the MAGTF mission. This element is formed around an aviation headquarters with appropriate air-control agencies, combat, combat support, and combat service support units. The ACE can vary in size and composition from an aviation detachment of specifically required aircraft to one or more Marine Aircraft Wings (MAWs).

**Combat Service Support Element (CSSE).** The CSSE is task-organized to provide the full range of combat service support functions and capabilities necessary to maintain the continued readiness and sustainability of the MAGTF as a whole. It is formed around a combat service support headquarters and may vary in size and composition from a support detachment to one or more Force Service Support Groups (FSSGs).

Types of MAGTFs

Four types of MAGTFs can be task-organized as follows: the Marine



Expeditionary Force, Marine Expeditionary Brigade, Marine Expeditionary Unit (Special Operations Capable), and Special Purpose.

***Marine Expeditionary Force (MEF):***

The MEF is the principal Marine Corps warfighting organization, particularly during larger crises or contingencies. It is normally commanded by a lieutenant general. A MEF can range in size from less than one to multiple divisions and aircraft wings, together with one or more FSSGs. Equipped with 60 days of supplies, MEFs are capable of both amphibious operations and sustained operations ashore in any geographic environment. With appropriate augmentation, the MEF command element is capable of performing as a Joint Task Force (JTF) headquarters.

MEFs are the primary “standing MAGTFs” that exist in peacetime, as well as wartime. Currently, the Marine Corps is organized with three standing MEFs, each with a Marine Division (MARDIV), MAW, and FSSG. The 1st Marine Expeditionary Force (I MEF) is located at bases in California and Arizona. The 2nd Marine Expeditionary Force (II MEF) is located at bases in North Carolina and South Carolina. The 3rd Marine Expeditionary Force (III MEF) is based in Okinawa, mainland Japan, and Hawaii.

MEFs remain the “cradles” or “reservoirs” from which all other Marine Corps capabilities emanate. Marine component headquarters, MARFORLANT or MARFORPAC, may form smaller MAGTFs from these MEFs. A MEF will normally deploy in echelon and will designate its lead element as the MEF (Forward).

***Marine Expeditionary Brigade (MEB):***

The MEB is the mid-sized MAGTF (up to 20,000 Marines) that is normally commanded by a brigadier general. The MEB provides transitional capability between the forward-deployed MEU and the MEF, which is our principal warfighting force. A reinforced infantry regiment, a composite Marine Aircraft Group (MAG), and a Brigade Service Support Group (BSSG) will comprise a notional MEB. The command element of the MEB is embedded within the command element of its parent MEF; the deputy MEF commander serves as the MEB commander.

MEBs provide supported combatant commanders with a scalable, warfighting capability across the spectrum of military operations. As an expeditionary force, it is capable of rapid deployment and employment via amphibious shipping (normally 15 amphibious ships, including five large-deck amphibious assault ships), strategic air/sea-lift, geographic or maritime propositioning force assets, or any combination thereof. With 30 days of accompanying supplies, MEBs can conduct amphibious assault and sustained operations ashore in any geographic environment.

A MEB can operate independently or serve as the forward echelon of a MEF. With additional MEF Command Element augmentation, a MEB is also capable of acting as a JTF headquarters. Currently, the 1st, 2nd, and 3rd MEB Command Elements are embedded within the CEs of I, II, and III MEF, respectively.

***Marine Expeditionary Unit (Special Operations Capable), or MEU(SOC):***  
Forward-deployed MEU(SOC)s embarked

aboard Expeditionary Strike Groups (ESGs) operate continuously in the areas of responsibility of various unified combatant commanders. These units provide the President and the unified combatant commanders with forward-deployed units that can conduct a variety of quick reaction, sea-based, crisis-response options in either a conventional amphibious/expeditionary role or in the execution of maritime special operations. The MEU is commanded by a colonel and deploys with 15 days of accompanying supplies.

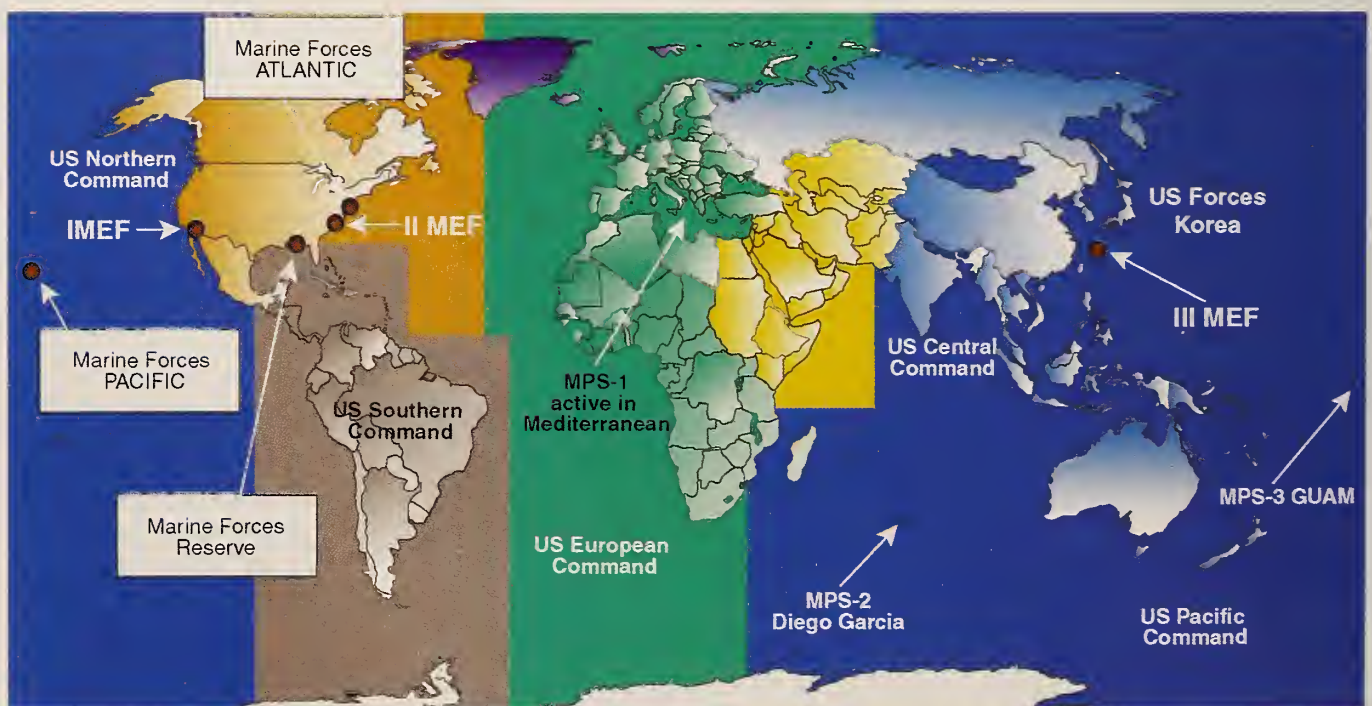
Prior to deployment, a MEU undergoes an intensive six-month training program, focusing on its conventional and selected maritime special operations missions. The training culminates with a thorough evaluation and certification as “Special Operations Capable.” In addition to possessing conventional capabilities, MEU(SOC)s are augmented with selected detachments to provide enhanced capabilities. These special capabilities include:

- Amphibious operations;
- Direct action;
- Tactical recovery of aircraft and personnel;
- Intelligence, surveillance, and reconnaissance;
- Airfield/port seizure;
- Non-combatant evacuations;
- Humanitarian aid/disaster relief; and,
- Supporting arms coordination.

COMMARFORLANT and COMMARFORPAC routinely maintain forward-deployed MEU(SOC)s in the Mediterranean, Arabian Gulf, and Pacific regions.

**Special Purpose MAGTF (SPMAGTF):** A SPMAGTF is task-organized to accomplish a specific mission, operation, or regionally focused exercise. As such, SPMAGTFs can be organized, trained, and equipped to conduct a wide variety of expeditionary operations, ranging from crisis-response to training exercises and

### Locations of MEFS, Maritime Prepositioning Squadrons, and MARFORS





peacetime missions. They are designated as SPMAGTF with a mission, location, or exercise name, for example, “SPMAGTF (X),” “SPMAGTF Somalia,” “SPMAGTF UNITAS,” or “SPMAGTF Dade County.” Their duties cover the spectrum from non-combatant evacuation to disaster relief and humanitarian missions.

### **MAGTF Sustainability**

A fundamental characteristic of a MAGTF is its ability to operate for extended periods as an expeditionary force, relying on internal resources for sustainment. All MAGTFs have inherent sustainability that allows them to be self-sufficient for planned periods. Larger MAGTFs have a deeper, broader, and more capable organic support capability. Different-sized MAGTFs deploy with sufficient accompanying supplies to support joint operations.

MAGTFs can augment their organic sustainability by using external support from Navy organizations, host nation support (HNS) agreements, inter-service support agreements (ISSAs), and in-theater cross-service support.

### **Maritime Prepositioning Force (MPF)**

The Maritime Prepositioning Force is a strategic power-projection capability that combines the lift capacity, flexibility, and responsiveness of surface ships with the speed of strategic airlift. Strategically positioned around the globe, MPFs provide unified combatant commanders with forward presence and rapid crisis-response. MPF ships are organized into three Maritime Prepositioning Ships Squadrons (MPSRONs): MPSRON-1, based in the Mediterranean; MPSRON-2, based at

Diego Garcia in the Indian Ocean; and, MPSRON-3, based in the Guam-Saipan area. The MPF is interoperable and flexible, able to support any size MAGTF—from a MEU to MEF—employing anywhere from one to all 16 ships.

When needed, these ships move to a crisis region and offload either in port or in-stream. Offloaded equipment and supplies are then married up with Marines arriving at nearby airfields. The end result is a combat-ready Marine Air-Ground Task Force rapidly established ashore, using minimal reception facilities. MPF is especially responsive to regional crises that involve humanitarian assistance and disaster relief. MPFs provide enough equipment and supplies to support a MAGTF (a MEB is standard for MPF support) for its first 30 days of operations.

MAGTF deployment planning and training is conducted by the Commanding Generals, II MEF (MPSRON 1); I MEF (MPSRON 2); and III MEF (MPSRON 3). The Commander, Marine Corps Logistics Base, Albany, GA, is responsible for obtaining, prepositioning, and maintaining Marine Corps supplies and equipment for each MPSRON. This is accomplished in conjunction with the MEFs through a maintenance cycle program conducted at the Blount Island facility in Jacksonville, FL. The MPF ships are civilian-owned and operated under long-term charters to the Military Sealift Command (MSC).

### **Unique Unified Commander Support**

A combatant commander or subordinate joint force commander may also require Marine forces that do not possess all elements of a MAGTF. These forces are

not given a MAGTF designation. Examples are installation security forces, engineer and medical support teams for humanitarian operations, deployments for training, law enforcement operations, and mobile training teams. In these cases, forces will be designated by the name of the senior headquarters having operational control, for example, 1st Combat Engineer Battalion (Rein), 1st Marine Division.

### **Other Special-Purpose Marine Corps Forces**

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The MAGTFs discussed above provide a continuum of capabilities to support naval, unified combatant commander, and national requirements. These MAGTFs are joined by other unique Marine forces to help the Corps deal with a full range of conventional and unconventional threats and assignments.

### **4th Marine Expeditionary Brigade (Anti-Terrorism)**

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In September 2001, the Marine Corps reactivated the 4th MEB as an anti-terrorism (AT) organization within Marine Corps Forces, Atlantic. The 4th MEB (AT) provides unified combatant commanders with specialized anti-terrorism forces that are rapidly deployable and sustainable. Its mission is to deter, detect, and defend against terrorist threats worldwide, and conduct an initial response to a chemical or biological incident.

The 4th MEB (AT) is organized around the Marine Corps Security Force Battalion; Marine Security Guard Battalion; Chemical Biological Incident Response Force (CBIRF); and, Anti-Terrorism Battalion. The CBIRF is capable of rapid response to

chemical or biological threats. Should an incident occur, CBIRF would immediately deploy to the affected site and provide a number of significant capabilities. These include the ability to coordinate initial relief efforts, to physically secure the incident site, to detect and identify chemical and biological agents, to provide expert medical advice, and to provide limited decontamination of personnel and equipment.

The Marine Corps Security Force Battalion provides training for armed anti-terrorism and physical security personnel who will serve at high-value naval installations or units. The battalion maintains a worldwide presence at different locations, ranging from Keflavik, Iceland, to Guantanamo Bay, Cuba, to Bahrain in the Arabian Gulf. These Marines protect key naval assets, including strategic weapons, command-and-control facilities, and naval support activities. In addition, the Security Force Battalion maintains two Fleet Anti-terrorism Security Team (FAST) companies for deployment as directed by the Commander, USJFCOM. The Marines of Marine Corps Security Force Battalion may also “perform other functions as directed” by the Commander, USJFCOM.

The two other elements of the 4th MEB (AT) play key roles, as well. Marine Security Guards provide security services to selected Department of State Foreign Service posts to prevent the compromise of classified material and equipment, and protect U.S. citizens and government property. The Anti-Terrorism Battalion focuses on the training of specialized skills through courses such as Urban Assault Climber and



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Enhanced Marksmanship, as well as advanced security techniques and weapon skills.

### **Air Contingency Forces**

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Both COMMARFORPAC and COMMARFORLANT maintain Air Contingency MAGTFs (ACM) in a continuous state of readiness. ACMs are air-deployable forces available to the unified combatant commanders, whose lead elements are prepared to deploy on short notice. The ACMs provide great versatility in that they can be used as part of the fly-in echelon of a MPF, as reinforcement for an amphibious force, or as the lead element of a MEF.

The ACM will be task-organized to meet the mission, the threat, and airlift availability. The size of the GCE can range from a reinforced rifle company plus a battalion headquarters element, to a regimental-size force consisting of a regimental headquarters, two infantry battalions, a two-battery artillery battalion, a two-platoon reconnaissance company, a two-platoon engineer company, and appropriate aviation and combat service support elements.

### **Norway Prepositioning Program**

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Similar in concept to the MPF but land-based, this program currently stores supplies and combat equipment at secure locations in Norway for an airlifted force. Forward positioning of equipment reduces both reaction time and additional airlift requirements.

### **Supporting Establishment**

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Marine Corps bases and stations, often referred to as the 5th element of the

MAGTF, consist of those personnel, bases, and activities that support the Marine Corps' operating forces. This infrastructure consists primarily of 15 major bases and stations in the United States and Japan, as well as the personnel, equipment, and facilities required to operate them.

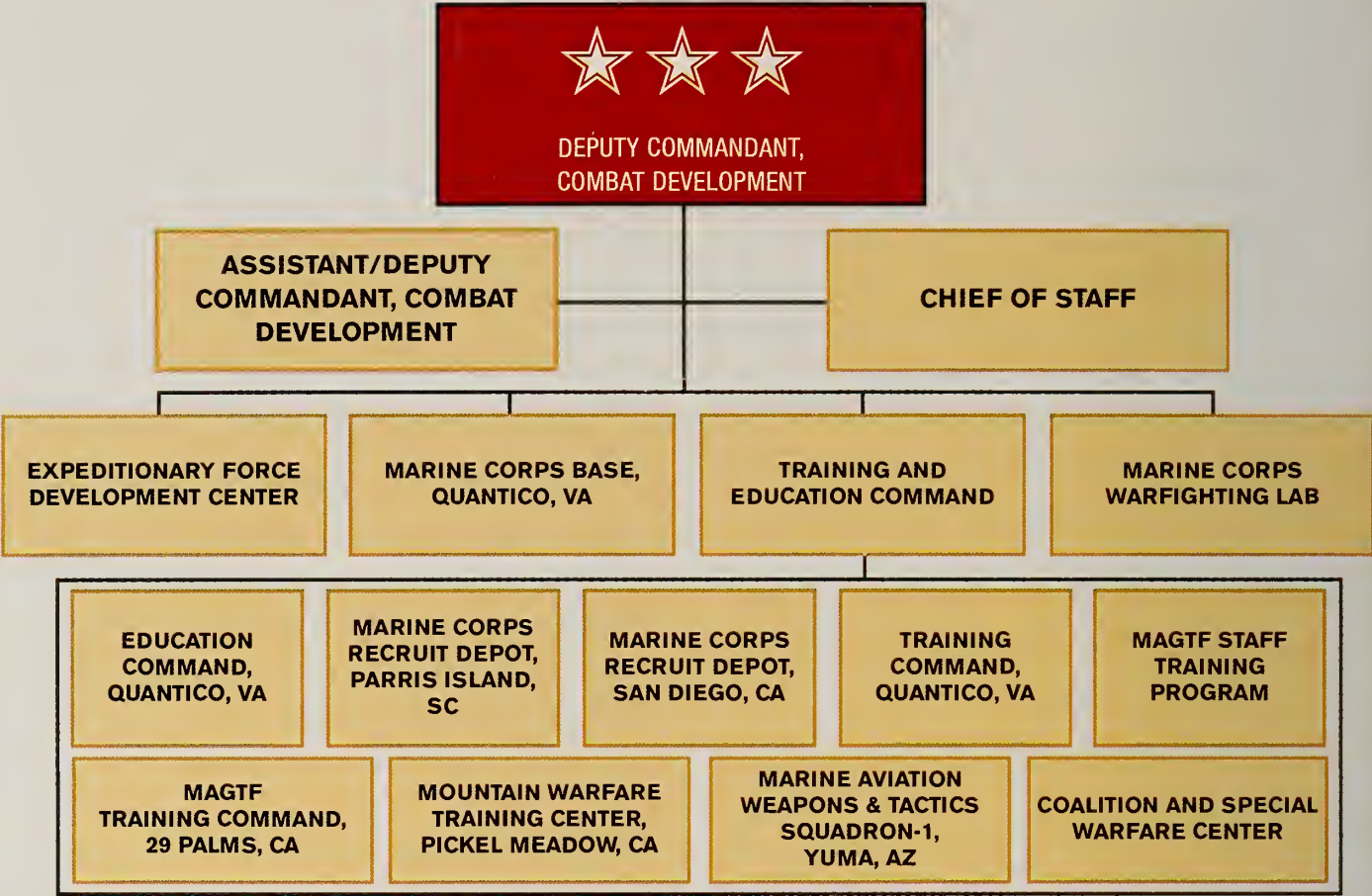
The supporting establishment also includes the Marine Corps Recruiting Command, Marine Corps Combat Development Command, and Marine Corps Logistics Command, as well as all training activities and formal schools. Additionally, the establishment includes those civilian activities and agencies that support the Marine Forces.

### **Marine Corps Total Force**

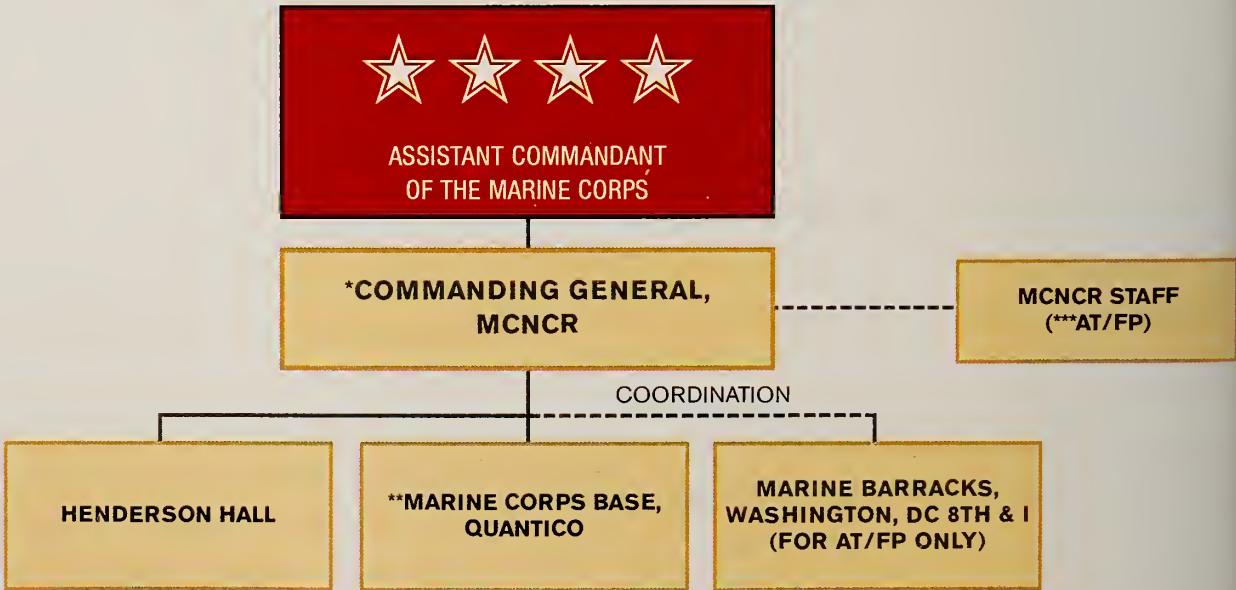
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There is a direct relationship between the size of the Marine Corps and the contribution made to our national defense. Large-scale deployments, operations, and training exercises with allies are part of our training and presence requirements in peacetime. A large percentage of our operating forces are forward-deployed in support of the Global War on Terrorism (GWOT), operations in the Arabian Gulf, and many other U.S. efforts and commitments. This has led to a high-deployment tempo and the demand for a sufficient rotation base back in the United States. This requirement will likely continue for the foreseeable future.

# Deputy Commandant, Combat Development/ U.S. Marine Corps Combat Development Command



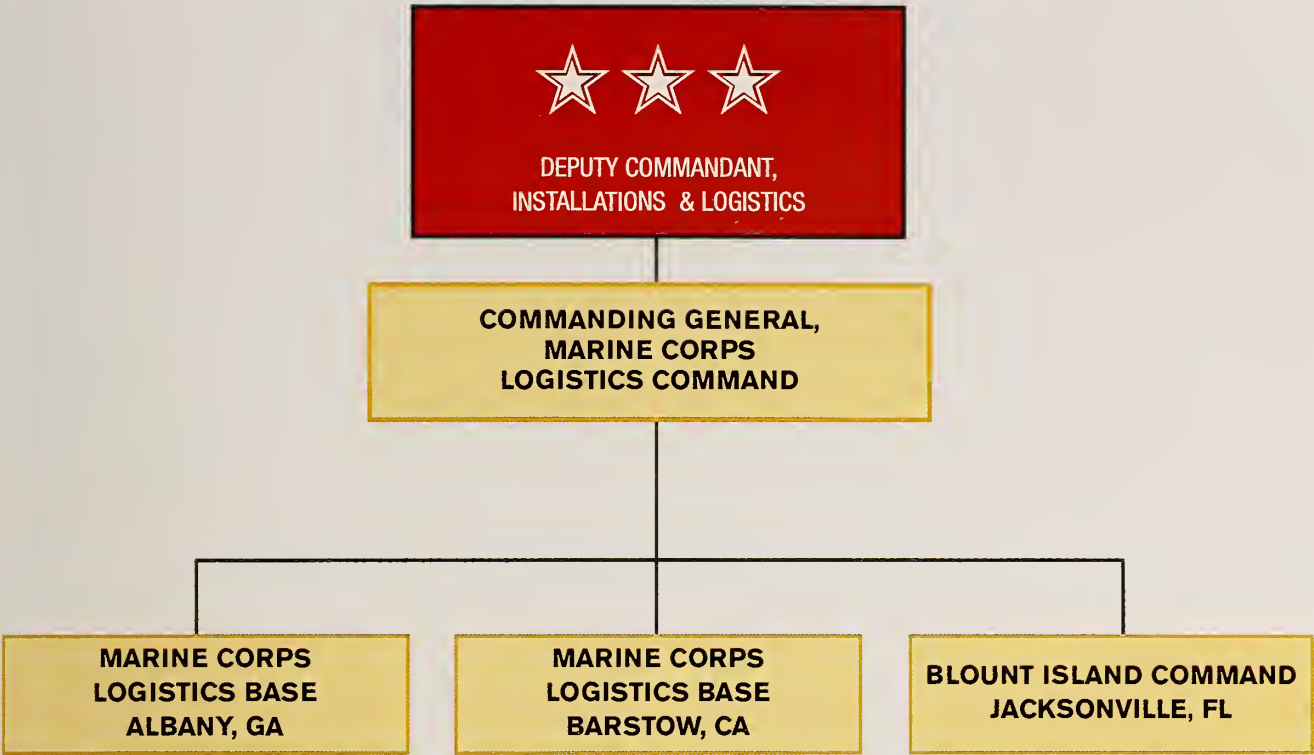
# U.S. Marine Corps National Capital Region Structure



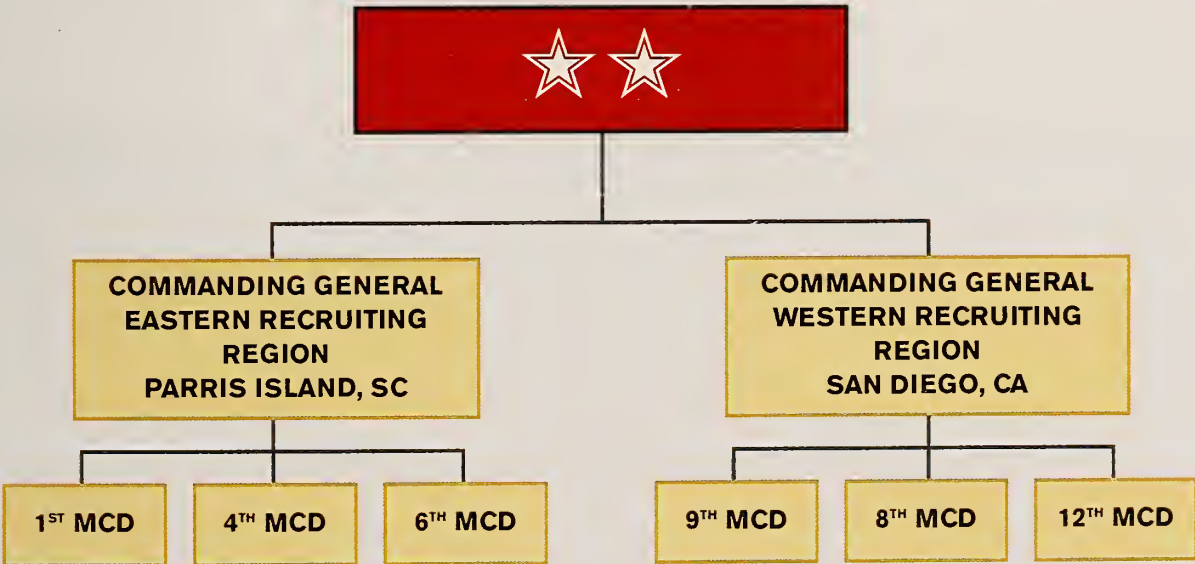
\* CG, MCCDC "DUAL HATTED AS CG, MCNCR.  
\*\* CO, MCB, QUANTICO "DUAL HATTED" AS DEPUTY COMMANDER, MCNCR  
\*\*\* ANTITERRORISM/FORCE PROTECTION - (AT/FP) STAFF FORMS THE STAFF NUCLEUS FOR THE MARINE CORPS SERVICE COMPONENT COMMAND ELEMENT OF THE JOINT FORCES HEADQUARTERS-NATIONAL CAPITAL REGION



# U.S. Marine Corps Installations & Logistics



# U.S. Marine Corps Recruiting Command



# Marine Barracks 8<sup>th</sup> & I

Established in 1801, Marine Barracks Washington D.C., is the “Oldest Post of the Corps” and has been the residence of every Commandant of the Marine Corps since 1806. The selection of the site for the barracks was a matter of personal interest to President Thomas Jefferson, who rode through Washington with Lieutenant Colonel Commandant Burrows in search of a suitable location. The site now occupied was chosen due to its location near the Navy Yard and the fact that it was within easy marching distance of the Capitol.

The Marine Barracks has also been home of the United States Marine Band since 1801. Shortly after its formation, the Band was requested to play for President John Adams at the Executive Mansion. This White House engagement began a tradition that has become so established that today the names “Marine Band” and “President’s Own” are synonymous. It was at the barracks that John Philip Sousa, during the time he was the director of the Marine Band, wrote many of his immortal marches.

Today’s barracks Marines perform many tasks in support of our diverse missions.

These include light infantry training, ceremonies, and presidential support duty. A company of “8th and I” Marines serves at Camp David, while another serves at the US Naval Academy. The barracks is also home to the Marine Corps Institute - the Corps’ distance training center, which is responsible for all nonresident military education programs.

## Evening Parade

A 75-minute performance of music and precision marching, the Evening Parade features “The President’s Own” United States Marine Band, “The Commandant’s Own” United States Marine Drum and Bugle Corps, and the Marine Corps Silent Drill Platoon. The Evening Parade is held every Friday evening from 13 May 2005 through 26 August 2005. The ceremony starts at 8:45 p.m., beginning with a concert by the “President’s Own.”

## How to Make Parade Reservations

Seating for the Evening Parade requires a reservation. Guests with reservations are admitted beginning at 7:00 p.m., and







should arrive no later than 8 p.m. Reservations may be made in writing, by fax, or online (for groups of 6 or less) at [www.mbw.usmc.mil](http://www.mbw.usmc.mil). To assure ample time to confirm reservations by return mail, requests should be addressed to the Protocol Officer, Marine Barracks, 8th and I Streets, S.E. Washington, D.C. 20390-5000. Requests made by fax should be faxed to the Protocol Officer at (202) 433-4076. The request should include the name of the party (either group or individual), the number of guests in the party, a complete return address, and a point of contact with a telephone number. An alternate parade date should be included in the request in case the primary date requested is unavailable.

At approximately 8:10 p.m., guests without reservations who are waiting outside the main gate of the Barracks are offered unclaimed seats. Confirmations and gate assignments for reservation requests will be made by return mail. There are no public parking spaces available at the barracks. Guests may park at Maritime Plaza, where a free shuttle service is provided to and from the Barracks. The first shuttle departs

Maritime Plaza at 7 p.m., and the last shuttle departs the Barracks at 11 p.m. For additional information, you may call the parade information line: (202) 433-6060.

### Sunset Parade

A one-hour performance, the Sunset Parade features the music of “The Commandant’s Own” United States Marine Drum and Bugle Corps, and a precision drill exhibition by the Marine Corps Silent Drill Platoon. The Sunset Parade is conducted every Tuesday evening from 7 June 2005 through 16 August 2005, beginning at 7 p.m. The Sunset Parade, held under the back-drop of the Marine Corps War Memorial, is open to the public at no charge. Reservations are not necessary. Spacious lawns provide ample room for guests to bring lawn chairs and blankets for informal viewing. There are no public parking spaces available at the memorial grounds on parade evenings. Guests may park at the Arlington National Cemetery Visitors’ Center for a minimal fee. A free shuttle service is provided from the Visitors’ Center from 5 to 7 p.m., before the parade and from 8 to 9 p.m. following the parade.

APPENDIX B

# Acronyms & Abbreviations

AAAV	Advanced Amphibious Assault Vehicle (Now called EFV)	AGLEP	Advanced Ground Laser Eye Protection
AAO	Approved Acquisition Objective	AGS	Advanced Gun System
AAP	Abbreviated Acquisition Program	AIS	Automated Information System
AAV	Assault Amphibious Vehicle	AIT	Automated Identification Technology
AAW	AntiAir Warfare	ALAM	Advanced Land Attack Missile
AAWSH	AntiArmor Weapon System Heavy	ALC	Area Learning Center
AAWSM	Advanced Antitank Weapon System Medium	ALEP	Amphibious Lift Enhancement Plan
ABC/M	Activity Based Costing and Management	ALICE	AllPurpose Lightweight Individual Carrying Equipment
ABT	Air Breathing Targets	AMC	Air Mobility Command
ABV	Assault Breacher Vehicle	AMCM	Airborne Mine Countermeasures
AC2S	Airborne Command and Control System	AMD	Advanced Mine Detector
ACADA	Automatic Chemical Agent Detector Alarm	AMRAAM	Advanced MediumRange Air to Air Missile
ACAT	Acquisition Category	ANAD	Anniston Army Depot
ACE	Aviation Combat Element	ANBACIS	Automated Nuclear Biological and Chemical Information System
ACM	Air Contingency MAGTF	ANGLICO	Air Naval GunfireLiaison Company
ACMC	Assistant Commandant of the Marine Corps	AO	Acquisition Objective
ACP	Aviation Continuation Pay	AoA	Analysis of Alternatives
ACS	Advanced Countermine System	AOR	Area of Responsibility
ACTD	Advanced Concept Technology Demonstration	AP	AntiPersonnel
ADCP	Air Defense Communications Platform	APECS	All Purpose Environmental Clothing System
ADFC	Advanced Digital Fire Control System	APN	Aircraft Procurement Navy
ADM	Acquisition Decision Memorandum	APOBS	Antipersonnel Obstacle Breaching System
ADS	Advanced Distributed Simulation	APOD/E	Aerial Port of Debarkation/Embarkation
ADS	Active Denial System	APS	Active Protective System
AE	Assault Echelon	ARC	Aviation Refueling Capability
AFATDS	Advanced Field Artillery Tactical Data System	ARDEC	Army Research Development and Engineering Center
AFOE	Assault Followon Echelon	A'RFF	Aircraft Rescue and Firefighting
AFV	Armored Fighting Vehicle	ARG	Amphibious Ready Group



ARPA	Advanced Research Projects Agency
AS	Analysis Substation
ASD / C31	Assistant Secretary of Defense for Command, Control, Communications and Intelligence
ASPARCS	Air Surveillance and Precision Approach Radar Control System
ASUW	Antisurface Warfare
ASVAB	Armed Services Vocational Aptitude Battery
ASW	Antisubmarine Warfare
AT	Antiterrorism
AT&L	Acquisition, Technology and Logistics
AT/FP	Antiterrorism/Force Protection
ATACC	Advanced Tactical Air Command Central
ATACMS	Army Tactical Missile System
ATARS	Advanced Tactical Airborne Reconnaissance System
ATC	Air Traffic Control
ATD	Advanced Technology Development
ATF	Amphibious Task Force
ATL	Advanced Tactical Laser
ATLASS	Asset Tracking Logistics and Supply System
ATM	Asynchronous Transfer Mode
ATO	Air Tasking Order
AUTODIN	Automated Digital Network
AVDTV	Armored Vehicle Driver's Thermal Viewer
AVDVE	Armored Vehicle Driver's Vision Enhancer
AWE	Advanced Warfighting Experiment
BA	Budget Activity/ Authority
BAH	Basic Allowance for Housing
BDA	Battle Damage Assessment/ Bomb Damage Assessment

BFT	Blue Force Tracker
BFV	Bradley Fighting Vehicle
BMAR	Backlog of Maintenance and Repair
BMD0	Ballistic Missile Defense Office
BOS	Base Operating Support
BRAC	Base Realignment and Closure
BSSG	Brigade Service Support Group
BST	Basic Skills Trainer
BTI	Base Telecommunications Infrastructure
BU	Block Upgrade
BUMED	Bureau of Medicine
BUR	BottomUp Review
BV	Base Vehicle
C NA	Center for Naval Analyses
C2	Command and Control
C2PC	Command and Control Personal Computer
C3I	Command, Control, Communications and Intelligence
C4I	Command, Control, Communications, Computers and Intelligence
C4I2	Command, Control, Communications, Computers, Intelligence and Interoperability
C4ISR	Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance
CAC2S	Common Aviation Command and Control System
CACCTUS	Combined Arms Command and Control Training Upgrade System
CAEMS	ComputerAided Embarkation Management System
CAM	Chemical Agent Monitor
CARAT	Cooperation Afloat Readiness and Training
CAST	Combined Arms Staff Trainer

## CASTFOREM - COE

CASTFOREM	Combined Arms and Support Task Force Evaluation Model	CIA	Central Intelligence Agency
CATF	Commander Amphibious Task Force	CIC	Combat Integration Capability
CAX	Combined Arms Exercise	CID	Combat Identification
CBIRF	Chemical Biological Incident Response Force	CIGSS	Common Imagery Ground/ Surface System
CBIS	Chemical Biological Individual Sampler	CIHEP	Center Intelligence/ Human Intelligence Equipment Program
CBMRFS	Concept Based Munitions Requirement System	CINC	CommanderInChief
CBRNE	Chemical Biological Radiological Nuclear Explosive	CCENT	Commander, Central Command
CBRP	Concept Base Requirements Process	CEUR	Commander, Europe
CBRS	Concept Base Requirements System	CJFCOM	Commander, Joint Forces Command
CBV	Combat Breacher Vehicle	CLANTFLT	Commander, Atlantic Fleet
CCA	ClingerCohan Act	CLRF	Common Laser Range Finder
CCD	Charged Couple Device	CLS	Contractor Logistics Support
CCP	Consolidated Cryptologic Program	CPAC	Commander, Pacific
CCS	COMINT Collection Subsystem	CPACFLT	Commander, Pacific Fleet
CD	Counter/Drug	CSOUTH	Commander, Southern Command
CDPU	Computer Data Processing Unit	CIO	Chief Information Officer
CDR	Critical Design Review	CJCS	Chairman Joint Chiefs of Staff
CDS	Combat Development System	CJF	Commander Joint Force
CE	Command Element	CJTF	Commander Joint Task Force
CEC	Cooperative Engagement Capability	CLASS	Closed Loop Artillery Simulation System
CECM	Communications Electronic Countermeasures	CLAWS	Complementary Low Altitude Weapons System
CENTCOM	Central Command	CLC2S	Common Logistics Command and Control System
CETO	Center for Emerging Threats and Opportunities	CM	Consequence Management
CETPS	Cooperative Engagement Transmission Processing Set	CMC	Commandant of the Marine Corps
CFAC	Clear Facilities	CMOS	Cargo Movement Operations System
CFC	Combined Forces Command	CMV	Combat Mobility Vehicle
CG	Commanding General	CNO	Chief of Naval Operations
CI/HUMINT	Counterintelligence/ Human Intelligence	COBRA	Coastal Battlefield Reconnaissance Analysis
		COC	Combat Operations Center
		COE	Common Operating Environment



COE	Concept of Employment
COMINT	Communications Intelligence
COMMARFOREUR	Commander, US Marine Forces, Europe
COMMARFORLANT	Commander, US Marine Forces, Atlantic
COMMARFORPAC	Commander, US Marine Forces, Pacific
COMMARFORRES	Commander, US Marine Forces, Reserve
COMNAV	Communication Navigation
COMSEC	Communications Security
COMUSNAVCENT	Commander US Navy Central Command
COMUSNAVEUR	Commander US Navy Europe
COMUSNAVPAC	Commander US Navy Pacific
CONPLAN	Contingency Plan
CONUS	Continental United States
COP	Common Operational Picture
CORM	Commission on Roles and Missions of the Armed Forces
COTS	Commercial offtheShelf
CP	Command Post
CPA	Chairman's Program Assessment
CPE	Collective Protective Environment
CPG	Commandant's Planning Guidance
CPR	Chairman's Program Review
CPU	Central Processing Unit
CPX	Command Post Exercise
CQB	Close Quarters Battle
CR	Combat Requirement
CRDEC	Chemical Research Development and Engineering Center
CROP	Common Relevant Operating Picture
CRS	Canteen Refilling System
CSAR	Combat Search and Rescue
CSG	Carrier Strike Group
CSS	Combat Service Support

CSSD	Combat Service Support Detachment
CSSE	Combat Service Support Element
CSSE SDE	Combat Service Support Element Shared Data Environment
CT	Counter Terrorism
CTI	Central Tire Inflation
CTN	Composite Tracking Network
CTOL	Conventional Take Off and Landing
CTP	Common Tactical Picture
CTT	Commanders Tactical Terminal
CV	Conventional Aircraft Carrier
CVBG	Carrier Battle Group
CVW	Carrier Air Wing
CWAR	Continuous Wave Acquisition Radar
CWT	Customer Wait Time
CY	Calendar Year
DA	Direct Action
DAB	Defense Acquisition Board
DACT	Data Automated Communications Terminal
DAMA	Demand Assigned Multiple Access
DARP	Defense Airborne Reconnaissance Program
DARPA	Defense Advanced Research Projects Agency
DART	Defense Assistance Response Team
DASC	Direct Air Support Center
DAWMS	Deep Attack Weapons Mix Study
DBBL	Dismounted Battlespace Battle Lab
DBOF	Defense Business Operations Fund
DCGS	Distribute Common Ground Systems
DCI&L	Deputy Commandant for Installations and Logistics
DCP	Defense Cryptologic Program
DCU	Dynamic Component Upgrade
DDG	Guided Missile Destroyer

DDS	Data Distribution System
DEP	Delayed Entry Program
DEPTempo	Deployment Tempo
DF	Direction Finding
DFT	Deployments for Training
DGIAP	Defense General Intelligence and Applications Program
DHP	Defense Health Care Program
DHS	Defense HUMINT Service
DIA	Defense Intelligence Agency
DICP	Defense Intelligence Counterdrug Program
DII	Defense Information Infrastructure
DIMAP	Defense Imagery and Mapping Program
DIS	Distributed Interactive Simulation
DISA	Defense Information Systems Agency
DISTP	Defense Special Technology Program
DITP	Defense Intelligence Tactical Program
DJCIP	Defense Joint Counterintelligence Program
DL	Distance Learning
DLC	Distance Learning Center
DLI	Defense Language Institute
DMRD	Defense Management Review Decision
DMS	Defense Messaging System
DMSO	Defense Modeling and Simulation Office
DMSS	Defense Medical Surveillance System
DOA	Days of Ammunition
DoD	Department of Defense
DoN	Department of the Navy
DOS	Days of Supply
DoS	Department of State

DOTMLPF	Doctrine, Organization, Training, Material, Leadership, Personnel, and Facilities
DPE	Data Processing Equipment
DPG	Defense Planning Guidance
DPP	Defense Program Projection
DPRB	Defense Planning and Resources Board
DR	Digital Radiography
DSCS	Defense Satellite Communications System
DSN	Defense Switched Network
DSRP	Defense Space Reconnaissance Program
DST	Decision Support Tools
DT	Developmental Test
DTC	Digital Technical Control
DTS	Defense Transportation System
DWTS PIP	Digital Wideband Transmission System Product Improvement Program
EA	Electronic Attack
EAF	Expeditionary Air Field
EBFL	Extended Boom Forklift
EDM	Engineering Development Model
EFSS	Expeditionary Fire Support System
EFV	Expeditionary Fighting Vehicle (Formerly AAAV)
EHF	Extremely High Frequency
ELB	Extended Littoral Battlespace
ELINT	Electronics Intelligence
EMAIL	Electronic Mail
EMD	Engineering and Manufacturing Development
EMW	Expeditionary Maneuver Warfare
ENBC	Enhanced NBC Capability
EO	Electro Optical



EOB	Electronic Order of Battle/ Enemy Order of Battle
EOD	Explosive Ordnance and Disposal
EOM	Echelon of Maintenance
EP	Electronic Protection
EPLRS	Enhanced Position Location Reporting System
EPUU	Enhanced PLRS User Units
ERGM	Extended Range Guided Munitions
ERIP	Engine Reliability Improvement Program
EROWPU	Enhanced Reverse Osmosis Water Purification Unit
ERP	Engine Reliability Program
ES	Equipment Suit
ESF	Expeditionary Strike Force
ESG	Expeditionary Strike Group
ESP	Extended Service Program
ESS	Electronics Intelligence (ELINT) Support System
ETSS	Extended Training Service Specialist
EUCOM	European Command
EUL	Economic Useful Life
EUT	End User Terminal
EW	Electronic Warfare
FAC	Forward Air Controller
FARP	Forward Arming Refueling Point
FASCAM	Family of Scatterable Mines
FAST	Fleet Antiterrorism Security Team
FATS	Fire Arms Training System
FAV	Fast Attack Vehicle
FCIP	Foreign Counterintelligence Program
FDC	Fire Direction Center
FDNF	Forward Deployed Naval Forces
FDS	Field Development System
FEA	Front End Analysis

FEO	Forcible Entry Operations
FEP	Firepower Enhancement Program
FEX	Field Exercise
FH	Frequency Hopping
FHMC	Family Housing Marine Corps
FIE	FlyIn Echelon
FIU	Force Imagery Interpretation Unit
FIM	Family of Improved Mortars
FIPP	Final Integration and Proveout Phase
FLC	Functional Learning Center
FLPP	Foreign Language Proficiency Pay
FM	Frequency Modulation
FMF	Fleet Marine Force
FO	Forward Observer
FOB	Forward Operating Base
FOC	Full Operational Capability
FOF	Floating Offshore Facility
FOM	Family of Munitions
FoS	Family of Systems
FOTS	FollowontoShoulderLaunched Multipurpose Assault Weapon (SMAW)
FOTT	FollowontoTOW
FOV	Family of Vehicles
FP	Force Protection
FPLIF	Field Pack Large with Internal Frame
FPU	Front Power Unit
FRP	Fleet Response Plan
FRP	Full Rate Production
FRSS	Forward Resuscitative Surgery System
FSC2S	Fire Support Command and Control System
FSCC	Fire Support Coordination Center
FSED	Full Scale Engineering Development
FSRM	Facilities Sustainment Restoration and Modernization

FSSG	Force Service Support Group
FTE	Full Time Equivalent
FTL	Far Target Location
FTS	Full Time Support
FTSS	Family of Tactical Soft Shelters
FUE	First Units Equipped
FY	Fiscal Year
FYDP	Future Year Defense Plan
FYEP	Five Year Experimentation Plan
GBS	Global Broadcast Service
GCCS	Global Command and Control System
GCE	Ground Combat Element
GCS	Ground Control Station
GCSS	Global Combat Support System
GCSSMC	Global Combat Support System Marine Corps
GDIP	General Defense Intelligence Program
GIG	Global Information Grid
GLPS	Gun Laying and Positioning System
GME	Garrison Mobile Equipment
GMF	Ground Mobile Forces
GOPLAT	Gas and Oil Platform
GOTS	Government offtheShelf
GP	General Purpose
GPR	Ground Processing Requirement
GPS	Global Positioning System
GTN	Global Transportation Network
GWOT	Global War on Terrorism
HARM	Highspeed AntiRadiation Missile
HAW	Heavy Antiarmor Weapon
HE	High Explosive
HEMTT	Heavy Expanded Mobility Tactical Truck
HERCULES	Heavy Equipment Recovery Combat Utility Lift and Evacuation System

HF	High Frequency
HHMMWV	Heavy Variant High Mobility Multipurpose Wheeled Vehicle
HIMARS	High Mobility Artillery Rocket System
HLA	High Level Architecture
HLCAC	Heavy Lift Landing Craft Air Cushion
HMD	High Mobility Downsize
HMH	Marine Heavy Helicopter Squadron
HMLA	Marine Light Attack Helicopter Squadron
HMM	Marine Medium Helicopter Squadron
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMX	Marine Helicopter Squadron 1
HNS	Host Nation Support
HQMC	Headquarters, Marine Corps
HSV	High Speed Vessel
HUD	Headsup Display
HUMINT	Human Source Intelligence
HWM	High Water Mark
HWTS	Heavy Weapons Thermal Sight
I2	Image Intensification
IA	Information Assurance
IAC	Intelligence Analysis Center
IAS	Intelligence Analysis System
ICAD	Individual Chemical Agent Detector
ICCE	Individual Combat Clothing and Equipment
IDASC	Improved Direct Air Support Center
IDIQ	Indefinite Duration, Indefinite Quantity Contract
IED	Improvised Explosive Device
IELD	Improved External Lift Device
IEWCS	Intelligence and Electronic Warfare Common Sensor
IFAV	Interim Fast Attack Vehicle



IFF	Identification Friend or Foe
IHR	InExtremis Hostage Rescue
IICS	Integrated Infantry Combat System
ILBE	Improved Load Bearing Equipment
ILC	Integrated Logistics Capability
IMA	Individual Mobilization Augmentees
IMI	Interactive Multimedia Instruction
IMINT	Imagery Intelligence
INFOSEC	Information Security
INRMP	Integrated Natural Resource Management Plans
INS	Inertial Navigation System
INTEL	Intelligence
IO	Information Operations
IOC	Initial Operational Capability
IOT	Initial Operational Test
IOT&E	Initial Operational Test and Evaluation
IOW	Intelligence Operations Workstations
IPCOT	InPlace Continuation of Overseas Tour
IPT	Integrated Product/Process Team
IR	Infrared
IR3B	Integrated Resources and Requirements Review Board
IRAM	Improved Reliability and Maintainability
IROAN	Inspect and Repair Only as Necessary
IRR	Individual Ready Reserve
IRV	Improved Recovery Vehicle
IS	Interim Standardization/ Information Systems
ISDN	Integrated Services Digital Network
ISMTE	Indoor Simulated Marksmanship Trainer Enhanced
ISNT	Indoor Simulated Marksmanship Trainer
ISO	International Organization for Standardization

ISP	Internet Service Provider
ISR	Intelligence, Surveillance and Reconnaissance
ISSA	InterService Support Agreement
IST	Infantry Squad Trainer
IT	Information Technology
ITAS	Improved Target Acquisition System
ITV	Internally Transportable Vehicle
ITV	InTransit Visibility
IWAR	Integrated Warfare Architecture
JAC	Joint Analysis Center
JBPDS	Joint Biological Point Detection System
JCAD	Joint Chemical Agent Detector
JCAS	Joint Close Air Support
JCATS	Joint Conflict and Tactical Simulation
JCD&E	Joint Concept Development and Experimentation
JCIDS	Joint Capabilities Integration and Development System
JCS	Joint Chiefs of Staff
JDAM	Joint Direct Attack Munitions
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFCOM	Joint Force Command
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JHSV	Joint High Speed Vessel
JI&I	Joint Integration and Interoperability
JIATFE	Joint Interagency Task Force East
JIATFW	Joint Interagency Task Force West
JIC	Joint Intelligence Center
JIPT	Joint Integrated Product Team
JLUS	Joint Land Use Studies

## JM - LHA

JM	JTIDS Module
JMA/SA	Joint Mission Area/Support Area
JMAA / JMNA	Joint Mission Area Analysis / Joint Mission Need Analysis
JMASS	Joint Modeling and Simulation System
JMCIS UB	Joint Maritime Command Information System Unified Build
JMIP	Joint Military Intelligence Program
JNLWD	Joint NonLethal Weapons Directorate
JNLWP	Joint NonLethal Weapons Program
JNMS	Joint Network Management System
JOA	Joint Operations Area
JOPES	Joint Operation Planning and Execution System
JOTS	Joint Operational Tactical System
JPOBIO	Joint Program Office for Biological Defense
JROC	Joint Requirements Oversight Council
JSCP	Joint Strategic Capabilities Plan
JSEAD	Joint Suppression of Enemy Air Defenses
JSF	Joint Strike Fighter
JSFXD	Joint Service Fixed Site Decontamination
JSIMS	Joint Simulation System
JSIPS	Joint Service Imagery Processing System
JSIPS TEG	Joint Service Imagery Processing System Tactical Exploitation Group
JSLIST	Joint Service Lightweight Integrated Suit Technology
JSLNBCRS	Joint Service Light NBC Reconnaissance System
JSLSCAD	Joint Services Lightweight Chemical Standoff Agent Detector
JSOC	Joint Special Operations Command

JSOW	Joint Standoff Weapon
JSTARS	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
JTF HQ	Joint Task Force Headquarters
JTIDS	Joint Tactical Information Distribution System
JTRS	Joint Tactical Radio System
JUW	Joint Urban Warfare
JWARN	Joint Warning and Reporting Network
JWARS	Joint Warfare System
JWCA	Joint Warfighting Capability Assessment
JWFC	Joint Warfighting Center
JWID	Joint Warrior Interoperability Demonstrations
JWTC	Joint Warfare Training Center/ Jungle Warfare Training Center
KPP	Key Performance Parameter
LAAD	Low Altitude Air Defense
LAAD	Low Altitude Air Defense Battalion
LAN	Local Area Network
LAR	Light Armored Reconnaissance
LAV	Light Armored Vehicle
LAV SLEP	LAV Service Life Extension Program
LAVAD	Light Armored Vehicle Air Defense
LAVM	Light Armored Vehicle Mortar
LAVFIST	LAV Full Crew Interactive Simulator Trainer
LCAC	Landing Craft Air Cushion
LCM	Life Cycle Management
LCU(R)	Landing Craft Utility Replacement
LEWDD	Lightweight Early Warning Detection Device
LHA	Amphibious Assault Ship General Purpose



LHD	Amphibious Assault Ship Multipurpose
LIC	Low Intensity Conflict
LKA	Amphibious Stores Ship
LLDR	Lightweight Laser Designator Rangefinder
LLI	Long Lead Item
LMCC	Logistics Movement Control Center
LME	Lightweight Maintenance Enclosure
LMR	Land Mobile Radio
LMRS	Longterm Mine Reconnaissance System
LMS	Lightweight Multipurpose Shelter
LMST	Lightweight Multiband Satellite Terminals
LNBCRS	Lightweight Nuclear Biological and Chemical Reconnaissance System
LOE	Limited Objective Experiment
LOGAIS	Logistics Automated Information System
LP/OP	Listening Post/Observation Post
LPD	Amphibious Transport Dock [Ship]
LPH	Amphibious Assault Ship Helicopter
LPP	Littoral Penetration Point
LRA	Local Registration Authority
LRC	Learning Resource Center
LRIP	Low Rate Initial Production
LRLAP	Long Range Land Attack Projectile
LRU	Line Replaceable Units
LSD	Landing Ship Dock
LST	Laser Spot Trackers/ Landing Ship Tank/ Troop
LTA	Launch Tube Assembly
LTVR	Light Tactical Vehicle Replacement
LUT	Limited User Test
LVS	Logistics Vehicle System

LW155	Lightweight 155mm Howitzer
LWH	Lightweight Helmet
LWTC	Littoral Warfare Training Complex
M&S	Modeling & Simulation
MAA	Mission Area Analysis
MACCS	Marine Air Command and Control System
MACE	MEF Augmentation Command Element
MACG	Marine Air Control Group
MACP	Marine Aviation Campaign Plan
MACS	Marine Air Control Squadron
MAG	Marine Aircraft Group
MAGIS	Marine Air Ground Intelligence System
MAGTF	Marine Air Ground Task Force
MALS	Marine Aviation Logistics Squadron
MARCENT	Marine Forces Central Command
MARCORMATCOM	Marine Corps Material Command
MARCORSYSCOM	Marine Corps System Command
MARDIV	Marine Division
MARFOR	Marine Forces
MARFOREUR	Marine Forces Europe
MARFORLANT	Marine Forces Atlantic
MARFORPAC	Marine Forces Pacific
MARFORRES	Marine Forces Reserve
MARFORSOUTH	Marine Forces South
MARINET	Marine Corps Learning Network
MARS	Marine Aviation Requirements Study
MASINT	Measurement and Signature Intelligence
MATCAL	Marine Air Traffic Control and Landing System
MCATCD	Marine Corps Air Traffic Control Detachment
MAW	Marine Aircraft Wing

MAW - MEWSS

MAW	Medium AntiArmor Weapon
MAWTS1	Marine Aviation Weapons and Tactics Squadron One
MBC	Mortar Ballistic Computer
Mbps	Megabits per second
MBST	Marine Battle Skills Training
MBT	Main Battle Tank
MCAGCC	Marine Corps AirGround Combat Center
MCARMS	Marine Corps Ammunition Requirements Management System
MCAS	Marine Corps Air Station
MCASS	Marine Common Application Support Software
MCB	Marine Corps Base
MCCDC	Marine Corps Combat Development Command
MCCPIP	Marine Corps Continuous Process Improvement Program
MCCS	Marine Corps Community Services
MCCUU	Marine Corps Combat Utility Uniform
MCDN	Marine Corps Data Network
MCEN	Marine Corps Enterprise Network
MCFSS	Marine Corps Fire Support System
MCHS	Marine Corps Common Hardware Suite
MCI	Marine Corps Institute
MCIA	Marine Corps Intelligence Activity
MCISU	Marine Corps Imagery Support Unit
MCLCP	Marine Corps Logistics Campaign Plan
MCM	Mine Countermeasures
MCMAP	Marine Corps Martial Arts Program
MCMP	Marine Corps Master Plan
MCMSO	Marine Corps Modeling and Simulation Management Office
MCMWTC	Marine Corps Mountain Warfare Training Center

MCNR	Military Construction Navy Reserve
MCON	Military Construction
MCOTEA	Marine Corps Operational Tests and Evaluation Activity
MCP	Mission Capability Package
MCPON	Master Chief Petty Officer of the Navy
MCPP	Marine Corps Planning Process
MCRC	Marine Corps Recruiting Command
MCSF	Marine Corps Security Forces
MCSSC2	Marine Combat Service Support Command and Control
MCT	Marine Combat Training
MCTEEP	Marine Corps Training Exercise Employment Plan
MCTSSA	Marine Corps Tactical System Support Activity
MCWL	Marine Corps Warfighting Laboratory
MDA	Milestone Decision Authority
MDC	Material Distribution Center
MDSS	MAGTF Deployment Support System
MEB	Marine Expeditionary Brigade
MEB (AE)	Marine Expeditionary Brigade Assault Echelon
MEB (AT)	Marine Expeditionary Brigade (Antiterrorism)
MECCES	Marine Corps Communications and Electronics School
MEF	Marine Expeditionary Force
MEFFV	MAGTF Expeditionary Family of Fighting Vehicles
MEP	Mobile Electric Power
MEP	Marine Enhancement Program
MEU	Marine Expeditionary Unit
MEU (SOC)	Marine Expeditionary Unit (Special Operations Capable)
MEWSS	Mobile Electronic Warfare Support System



MEWSSPIP	Mobile Electronic Warfare Support System Product Improvement Program
MFK	Mobile Field Kitchen
MFOM	MLRS Family of Munitions
MHE	Materials Handling Equipment
Mhz	Megahertz
MIA	Missing In Action
MIIDS	Military Integrated Intelligence Data System
MILCON	Military Construction Navy
MILES	Multiple Integrated Laser Engagement System
MILSTAR	Military Strategic and Tactical Relay
MIO	Maritime Interdiction Operationsa
MLA	Medium Lift Alternative
MLRS	Multiple Launch Rocket System
MLS	Marine Load System
MMS	Marine Mammal System
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
MOB	Mobile Offshore Base
MOL	Marine on Line
MOLLE	Modular Lightweight Load Carrying Equipment
MOOTW	Military Operations Other than War
MOPP	Mission Oriented Protective Posture
MOS	Military Occupational Specialty
MOU	Memorandum of Understanding
MOUT	Military Operations in Urban Terrain
MPF	Maritime Prepositioning Force
MPF (E)	Maritime Prepositioning Force (Enhanced)
MPF (F)	Maritime Prepositioning Force (Future)
MPIM	MultiPurpose Individual Munition
MPMC	Military Personnel Marine Corps

MPS	Maritime Prepositioning Ships
MPSRON	Maritime Prepositioning Ships Squadron
MRB	MROC Review Board
MROC	Marine Requirements Oversight Council
MRP	Maintenance of Real Property
MRRS	MultiRole Radar System
MRS	Mobility Requirements Study
MSBL	MAGTF Software Baseline
MSC	Military Sealift Command
MSC	Major Subordinate Command
MSE	Major Subordinate Element
MSG	Marine Security Guard Battalion
MSR	Main Supply Routes
MSTP	MAGTF Staff Training Program
MTACCS	Marine Tactical Command and Control System
MTID	MILES Target Interface Device
MTT	Mobile Training Team
MTVR	Medium Tactical Vehicle Replacement
MTWS	MAGTF Warfare Simulation
MULE	Modular Universal Laser Equipment
MWS	Modular Weapon System
MWSG	Marine Wing Support Group
MWSS	Marine Wing Support Squadrons
MWTS	Medium Weapon Thermal Sight
NMCI	Navy/ Marine Corps Intranet
NAF	Non-Appropriated Funds
NALMEB	Norway Air Landed MEB
NAPDD	Non-Acquisition Category Program Definition Document
NAS	Naval Air Station
NATO	North Atlantic Treaty Organization
NAVFLIR	Navigation Forward Looking Infrared

NBC	Nuclear, Biological and Chemical
NCO	Noncommissioned Officer
NCSE (D)	Downsized Enhanced Net Control Station
NDI	Non-Developmental Item
NDP	National Defense Panel
NDSS	Network Data Storage Solution
NEF	Naval Expeditionary Force
NEO	Noncombatant Evacuation Operations
NESEA	Naval Electronics System Engineering Activity
NFCS	Naval Fires Control System
NFIP	National Foreign Intelligence Program
NIMA	National Imagery and Mapping Agency
NIPRNET	Nonsecure Internet Protocol Router Network
NITF	National Imagery Transmission Format
NLW	Non-Lethal Weapons
NM	Nautical Miles
NMCB/R	Naval Mobile Construction Battalion/ Regiment
NMCI	Navy Marine Corps Intranet
NMS	National Military Strategy
NOS	Network Operating System
NRL	Naval Research Lab
NRT	Near Real Time
NSE	Naval Support Equipment/ Element
NSFS	Naval Surface Fire Support
NTCSA	Naval Tactical Command System Afloat
NTIS	Night Thermal Imagery System
NTS	Night Targeting System
NVG	Night Vision Goggles
O&MMC	Operation and Maintenance Marine Corps

O&MMCR	Operation and Maintenance Marine Corps Reserve
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OEO	Other Expeditionary Operations
OMCM	Organic Mine Countermeasure
OMFTS	Operational Maneuver From the Sea
ONE	Operation Noble Eagle
ONR	Office of Naval Research
ONW	Operation Northern Watch
OODA	Observe, Orient, Decide, Act
OOTW	Operations Other Than War
OPEVAL	Operational Evaluation
OPLAN	Operation Plan
OPNAV	Chief of Naval Operations
OPP	Offload Preparation Party
OPSEC	Operational Security
OPTEMPO	Operational Tempo
ORD	Operational Requirements Document
OSA	Operational Support Airlift
OSD	Office of the Secretary of Defense
OST	Order Ship Time
OSW	Operation Southern Watch
OT&E	Operational Test and Evaluation
OTEIP Program	Overseas Tour Extension Incentive Program
OTH	Over-the-Horizon
OTV	Outer Tactical Vest
PAA	Primary Aircraft Authorization
PACOM	Pacific Command
PALCON	Pallet Containers
PANMC	Procurement of Ammunition Navy and Marine Corps
PASGT	Personal Armor System Ground Troops
PCS	Permanent Change of Station



PDEA	Power Driven Excavating Arm
PDR	Preliminary Design Review
PDRR	Program Definition and Risk Reduction
PEO	Program Execution Officer
PERSTEMPO	Personnel Tempo PGM Precision Guided Munitions
PGS	Precision Gunnery System
PGTS	Precision Gunnery Training System
PIP	Product Improvement Program
PITS	Portable Infantry Target System
PKI	Public Key Infrastructure
PLGSR	Precision Lightweight Global Positioning System Receiver
PLRS	Position Location Reporting System
PM	Program Manager
PMC	Procurement Marine Corps
PME	Professional Military Education
POD	Port of Debarkation
POE	Port of Embarkation
POM	Program Objective Memorandum
POW	Prisoner of War
PP&O	Plans, Policies and Operations
PPBES	Planning, Programming, Budgeting, and Execution System
PPV	Public/Private Ventures
PR	Personnel Recovery
PRG	Program Review Group
PSD	Propulsion System Demonstrator
PSYOPS	Psychological Operations
PWRMS	Prepositioned War Reserve Material Stocks
QDR	Quadrennial Defense Review
QoL	Quality of Life
QUADCON	Quadruple Containers
R&D	Research and Development

R2D2	Radio Reconnaissance Distribution Device
R2P2	Rapid Response Planning Process
R3B	Resources and Requirements Review Board
RAC	Riverine Assault Craft
RACWETS	Riverine Assault Craft Weapons Engagement Training System
RAM	Reliability, Availability and Maintainability
RAM/RS	Reliability, Availability and Maintainability/ Rebuild to Standard
RAMD	Reliability, Availability, Maintainability and Durability
RBA	Revolution in Business Affairs
RBE	Remain Behind Equipment
RBU	Rear Body Units
RCT	Repair Cycle Time
RDK	Rapid Deployment Kitchen
RDT&E	Research Development Test and Evaluation
RETS	Remote Engagement Target System
RF	Radio Frequency
RFP	Request for Proposal
RHC	Ruggedized Handheld Computer
RIS	Range Instrumentation System
RLST	Remote Landing Site Tower
RMA	Revolution in Military Affairs
RMHS	Remote Mine Hunting System
RMS	Remote Mine Hunting System
RO/RO	Rollon/Rolloff
ROC	Required Operation Capability
ROE	Rules of Engagement
ROWPU	Reserve Osmosis Water Purification Unit
RPMC	Reserve Personnel Marine Corps

RRC - STAMIS

RRC	Rigid Raiding Craft
RREP	Radio Reconnaissance Equipment Program
RRR	Residual Reserve Requirement
RRT	Radio Reconnaissance Teams
RSO&I	Reception, Staging, Onward Movement and Integration
S&T	Science and Technology
SAAWC	Sector Anti-Air Warfare Coordinator
SAAWF	Sector Anti-Air Warfare Facility
SACC	Supporting Arms Coordination Center
SAG	Surface Action Group
SAPI	Small Arms Protective Insert
SAR	Search and Rescue
SATCOM	Satellite Communications
SCI	Special Compartmented Information
SCN	Shipbuilding and Conversion Navy
SCT	Smart Card Technology
SDD	System Development and Demonstration
SDE	Shared Data Environment
SDS	Sorbent Decontamination System
SE	Supporting Establishment
SEAL	Sea, Air, Land (Military Special Force Member)
SECREP	Secondary Repairables
SEP	Soldier Enhancement Program
SESAMS	Special Effects Small Arms Marking System
SHADE	Shared Data Environment
SHF	Super High Frequency
SHORAD	Short Range Air Defense
SIDS	Secondary Imagery Dissemination System
SIE	Systems Integration Environment
SIGINT	Signals Intelligence

SINGARS	Single Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SLEP	Service Life Extension Program
SLOC	Sea Lines of Communication
SLRP	Survey Liaison & Reconnaissance Party
SMARTT	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMAW	Shoulder Launched Multipurpose Assault Weapon
SMCM	Surface Mine Countermeasures
SMCR	Selected Marine Corps Reserve
SMMC	Sergeant Major of the Marine Corps
SNCO	Staff Noncommissioned Officer
SOA	Sustained Operations Ashore
SOC	Special Operations Capable
SOI	School of Infantry
SONET	Synchronization Optical Network
SOUTHCOM	Southern Command
SPACECOM	Space Command
SPAWAR	Space and Naval Warfare System Command
SPMAGTF	Special Purpose Marine AirGround Task Force
SPMAGTF(X)	Special Purpose MAGTF (Experimental)
SPOD/E	Surface Port of Debarkation/Embarkation
SRAW	Short Range Antitank Weapon
SRB	Selective Reenlistment Bonus
SRR	Strategic and Residual Requirement
SRU	Shop Replacement Units
SSCC	SPAWAR Systems Center Charleston
ST	Science and Technology
STAMIS	Standard Management Information Systems



START	SHF Tri-Band Advanced Range Extension Terminal
STOM	Ship to Objective Maneuver
STOVL	Short Takeoff and Vertical Landing
STRATCOM	Strategic Command
SUBD	Small Unit Biological Detector
SURC	Small Unit Riverine Craft
SURSS	Small Unit Remote Scouting System
SWA	Southwest Asia
SWMCM	Shallow Water Mine Countermeasures
SZ	Surf Zone
T/M/S	Type/Model/Series
TacAir	Tactical Aviation
TACC	Tactical Air Command Center
TACO	Tactical Communications
TACOM	US Army Tank Automotive & Armaments Command
TAD	Towed Artillery Digitization
TAD	Temporary Additional Duty
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module
TAVB	Aviation Logistics Support Ship
TBD	To Be Determined
TBM	Tactical Ballistic Missile
TBMCS	Theater Battle Management Core System
TBMD	Theater Ballistic Missile Defense
TCAC	Technical Control and Analysis Center
TCC	Tactical Communications Center
TCIM	Tactical Communications Interface Module
TCO	Tactical Combat Operations
TCS	Tactical Control Station
TDCP	Tactical Data Communications Processor

TDMA	Time Division Multiple Access
TDN	Tactical Data Network
TDS	Tactical Data System
TECOM	Training and Education Command
TEG	Tactical Exploitation Group
TEMP	Test and Evaluation Master Plan
TEPOP	Training and Education Point of Presence
TERPES	Tactical Electronic Reconnaissance Processing and Evaluation System
TESS	Tactical Engagement Simulation System
TETS	Third Echelon Test Sets
TFDSS	Total Force Decision Support System
THS	Target Handoff Subsystem
TIM	Toxic Industrial Materials
TLAM	Tomahawk LandAttack Missile
TLDHS	Target Location Designation and Handoff System
TMIPM	Theater Medical Information Program (Maritime)
TOA	Total Obligation Authority
TOR	Terms of Reference
TOW	Tube Launched Optically Tracked Wire Guided Missile
TPC	Topographic Production Capability
TPCS	Team Portable Collection System
TPFDD/L	Time Phased Force Deployment Data/List
TQG	Tactical Quiet Generator
TRAM	Tractor Rubbertired Articulated Steering Multipurpose
TRANSCOM	Transportation Command
TRAP	Tactical Recovery of Aircraft and Personnel
TRE	Tactical Receive Equipment
TRHS	Tray Ration Heating System

## TRITAC - WWMCCS

TRITAC	TriService Tactical Communications
TRSS	Tactical Remote Sensor System
TSOC	Theater Special Operations Commands
TSOF	Technical Support of Operating Forces
TSS	Target Sight System
TTP	Tactics, Techniques and Procedures
TUGV	Tactical Unmanned Ground Vehicles
TUVM	Tactical Unmanned VehicleMedium
TWGSS	Tank Weapon Gunnery Simulator System
TWS	Thermal Weapons Sight
TWSEAS	Tactical Warfare Simulation Evaluation & Analysis System
UAV	Unmanned Aerial Vehicle
UCP	Unified Command Plan
UDP	Unit Deployment Program
UGV	Unmanned Ground Vehicle
UHF	Ultra High Frequency
ULCS	Unit Level Circuit Switch
UMCM	Undersea Mine Countermeasures
UNC	United Nations Command (Korea)
UNITAS	An annual US Southern Command–sponsored series of exercises in South America
UNMIH	United Nations Mission in Haiti
UNOSOM	United Nations Operations Somalia
UNPROFOR	United Nations Protection Force (Bosnia)
UOC	Unit Operations Center
USCENTCOM	United States Central Command
USEUCOM	United States European Command
USJFC	United States Joint Forces Command
USMARCENT	US Marine Corps Forces, Central Command
USMARFORK	US Marine Corps Forces, Korea
USMC	United States Marine Corps

USPACOM	United States Pacific Command
USSOCOM	US Special Operations Command
USSOUTHCOM	United States Southern Command
UUV	Unmanned Underwater Vehicle
V/STOL	Vertical/Short Takeoff and Landing
VHF	Very High Frequency
VMA	Marine Attack Squadron
VMAQ	Marine Tactical Electronic Warfare Squadron
VMFA	Marine Fighter/Attack Squadron
VMFA(AW)	Marine AllWeather Fighter/Attack Squadron
VMGR	Marine Aerial Refuel and Transport Squadron
VMM	Marine Medium Tiltrotor Squadron
VMMT	Marine Medium Tiltrotor Training Squadron
VMU	Marine Unmanned Aerial Vehicle Squadron
VSW	Very Shallow Water
VTOL	Vertical Takeoff and Landing
VT	Video Teletraining
WAN	Wide Area Network
WHNS	Wartime Host Nation Support
WMD	Weapons of Mass Destruction
WNW	Wideband Networking Waveform
WPN	Weapons Procurement Navy
WRMR	War Reserve Munitions Requirement
WTI	Weapons and Tactics Instructor
WWMCCS	Worldwide Military Command and Control System



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